BULLETIN of the
SCHOOL OF EDUCATION
INDIANA UNIVERSITY

Indiana and Midwest School Building Planning Conference: Proceedings

Vol. XXVI, No. 5 September, 1950

OFFICERS OF THE UNIVERSITY

HERMAN B WELLS, A.M., LL.D., President
HERMAN THOMPSON BRISCOE, Ph.D., Vice President, and Dean of the Faculties
JOSEPH AMOS FRANKLIN, B.S., Vice President, and Treasurer
CHARLES EDWIN HARRELL, A.B., LL.B., Registrar, and Director of the Office of Records and Admissions

ADMINISTRATIVE STAFF OF THE SCHOOL OF EDUCATION

WENDELL WILLIAM WRIGHT, Ph.D., Dean
RALEIGH WARREN HOLMSTEDT, Ph.D., Assistant to the Dean
(Mrs.) DOROTHY J. MCCAW, Assistant to the Dean
PHILIP PEAK, M.S., Assistant to the Dean
OTTO HUGHES, A.M., Principal of the University School
MARGARET I. RUFSVOLD, A.M., Director of Library Science
DOTALINE E. ALLEN, M.S. in Ed., Acting Director of the Division of Nursing Education
KATHLEEN DUGDALE, A.M., Editor of Publications in Education

ADMINISTRATIVE STAFF OF THE DIVISION OF RESEARCH AND FIELD SERVICES

HAROLD H. CHURCH, Ph.D., Director of the Division of Research and Field Services
WILLIAM H. FOX, Ph.D., Assistant Director of the Division of Research and Field Services
RUTH FAY ARGANBRIGHT, M.S. in Ed., Assistant Director of the Division of Research and Field Services
PAUL W. SEAGERS, Ed.D., School Building Consultant

GRADUATE RESEARCH ASSISTANTS

RICHARD E. BARNHART, M.S.
CHARLES P. BEALL, A.M.
DONALD A. JONES, M.S.
BEEMAN N. PHILLIPS, M.S.
EDGAR A. SMITH, M.S.
JAMES G. SNOWDEN, A.M.
STEVEN ZORICH, B.S.

OFFICERS OF THE UNIVERSITY

HERMAN B WELLS, A.M., LL.D., President
HERMAN THOMPSON BRISCOE, Ph.D., Vice President, and Dean of the Faculties
JOSEPH AMOS FRANKLIN, B.S., Vice President, and Treasurer
CHARLES EDWIN HARRELL, A.B., LL.B., Registrar, and Director of the Office of Records and Admissions

ADMINISTRATIVE STAFF OF THE SCHOOL OF EDUCATION

WENDELL WILLIAM WRIGHT, Ph.D., Dean
RALEIGH WARREN HOLMSTEDT, Ph.D., Assistant to the Dean
(Mrs.) DOROTHY J. MCCAW, Assistant to the Dean
PHILIP PEAK, M.S., Assistant to the Dean
OTTO HUGHES, A.M., Principal of the University School
MARGARET I. RUFSVOLD, A.M., Director of Library Science
DOTALINE E. ALLEN, M.S. in Ed., Acting Director of the Division of Nursing Education
KATHLEEN DUGDALE, A.M., Editor of Publications in Education

ADMINISTRATIVE STAFF OF THE DIVISION OF RESEARCH AND FIELD SERVICES

HAROLD H. CHURCH, Ph.D., Director of the Division of Research and Field Services
WILLIAM H. FOX, Ph.D., Assistant Director of the Division of Research and Field Services
RUTH FAY ARGANBRIGHT, M.S. in Ed., Assistant Director of the Division of Research and Field Services
PAUL W. SEAGERS, Ed.D., School Building Consultant

GRADUATE RESEARCH ASSISTANTS

RICHARD E. BARNHART, M.S.
CHARLES P. BEALL, A.M.
DONALD A. JONES, M.S.
BEEMAN N. PHILLIPS, M.S.
EDGAR A. SMITH, M.S.
JAMES G. SNOWDEN, A.M.
STEVEN ZORICH, B.S.

BULLETIN OF THE SCHOOL OF EDUCATION
INDIANA UNIVERSITY

Indiana and Midwest School Building Planning Conference: Proceedings

Planning Educational Environment for a New Age

Published by the
DIVISION OF RESEARCH AND FIELD SERVICES
Indiana University

Price $1.00, postpaid

For sale by the Indiana University Bookstore,

Bloomington, Indiana

Entered as second-class mail matter September 30, 1924, at the post office at Bloomington, Indiana, under the Act of August 24, 1912. Published in January, March, May, July, September, and November of each year, from the University Office, Bloomington, Indiana.

TABLE OF CONTENTS

	Page
Foreword	6
Program	7
Elementary School Section	12
Business Education Section	18
Community Use and Adult Education Section	29
Audio-Visual Section	32
Radio and Television Section	37
Television in Indiana	50
Summary or Presentation	56
Bibliography	64

LIST OF FIGURES

Figure		Page
1.	Diagram of Sheltered Rainspout	13
2.	Monitor Roof Double-Loaded Corridor Construction	13
3.	Clerestory Double-Loaded Corridor with Depressed Roof	14
4.	Model Primary Classroom Designed in Terms of Functional Interest and Activity Centers (View from Front)	15
5.	Model Primary Classroom Designed in Terms of Functional Interest and Activity Centers (View from Front Corner)	15
6.	Model Primary Classroom Designed in Terms of Functional Interest and Activity Centers (View from Rear Corner)	16
7.	Model Primary Classroom Designed in Terms of Functional Interest and Activity Centers (View from Side)	16
8.	Layout of a One-Room Business Teacher Department	21
9.	Layout Showing the Grouping of Similar Machines in an Office Practice Laboratory	22
10.	An Office Practice Laboratory for 15 Students	23
11.	Conference Suite Adjoining the Principal's Office	30
12.	Multi-Purpose Room	30
13.	Floor Plan of the WVSH School Radio Studio at Huntington, Indiana	43
14.	Layout of WNAS Radio Studio at New Albany, Indiana	44
15	Publicity for School Radio Station WNAS, at New Albany, Indiana	45
16.	Floor Plan of Louisville (Kentucky) Public Library FM Radio Station	46
17.	Entrance to the Audio-Visual Department	47
18.	Service Area	47
19.	Sound-Proofing Hood for a Motion Picture Projector	48
20.	Preview Studio	48
21.	Small Studio (Shown as Studio B in Floor Plans)	49
22.	Large Studio (Shown as Studio A in Floor Plans)	49
23.	Six Areas in Indiana Served by 13 Television Stations	50
24.	Proposed Location of Television Stations Serving Indiana	51
25.	Geographical Coverage of the Proposed Television Stations Serving Indiana	54
26.	Kinds of Aid Given by the 13 Television Stations Serving Indiana	55

FOREWORD

The 1950 Indiana and Midwest School Building Planning Conference was set up on a workshop basis with groups studying specific areas for three sessions and making reports before the whole conference group at the fourth session. It was recognized that three work sessions are too few to give extensive consideration to the assigned topics. However, it was thought that the inspiration received by the participants would lead many of them to pursue their studies further.

The reports of the committees printed in this bulletin give only the high spots of the discussions. The reader should find the bibliographies very helpful in solving many of his problems. The examples of school activities included in this bulletin, such as the one on radio, should be studied in light of pioneering; in fact, the school officials themselves are the first to criticize their own programs. Many suggestions for improvement will come to your mind as you read these materials.

Indiana University, and especially the School of Education, wishes to thank the many superintendents, architects, parents, and teachers who helped to make this conference a success. Special thanks should go to those who came great distances from other states, to the many Indiana University professors who gave much of their time to this program, to the graduate students who gave preliminary reports on their studies, to the members of my class who acted as recorders, and to my two assistants who worked hard both before and during the conference. This cooperation by so many different people in the quest of information for the planning of the best in educational facilities gave birth to this bulletin.

PAUL W. SEAGERS, Conference Chairman

PROGRAM

Indiana and Midwest School Building Planning Conference

THEME:

"Planning Educational Environment for a New Age"

- - - - - - - - — - - - - - - - -

A Work Type Conference for Teachers, Principals, Superintendents, Board Members, Trustees, Architects, and Parents

Paul W. Seagers, Conference Chairman

Wendell W. Wright, Dean, School of Education

- - - - - - - - — - - - - - - - -

MEMORIAL UNION BUILDING INDIANA UNIVERSITY
BLOOMINGTON, INDIANA

FRIDAY AND SATURDAY
JULY 14 and 15, 1950

INDIANA UNIVERSITY—SCHOOL OF EDUCATION
Division of Research and Field Services

PROGRAM

FRIDAY MORNING, JULY 14

Union Building

9:00 A.M.*

Registration - - - - - - - - - Lobby, Union Building

10:00 A.M.—12:15 P.M.

Group Meetings

1. Elementary School - - - - - - - - - Room 307
2. Business Education - - - - - - - - - Room 314
3. Adult Education and Community Use - - Room 306
4. Audio-Visual Education - - - - - - - Bryan Room
5. Radio-Television - - - - - - - - - Bryan Room

(The Union Board Room is also available to #4 and #5 groups for subcommittee work)

FRIDAY AFTERNOON, JULY 14

Union Building

1:30 P.M.—4:30 P.M.

Group Meetings Continued

FRIDAY EVENING, JULY 14

Union Building

7:30 P.M.—9:45 P.M.

Group Meetings Continued

SATURDAY MORNING, JULY 15

Room D, Union Building

9:00 A.M.

Presiding - - - - - - - - - - - - Paul W. Seagers
Welcome - - - - - - - - - - - - - H. B. Allman
Director, Summer Session
"Analyzing Environment Needs" - Dean Wendell W. Wright

9:45 A.M.

Presentation of Group Reports

12:15 P.M.

Adjournment

* Daylight Saving Time

Please select the group you wish to attend.

I. ELEMENTARY SCHOOL SECTION

Chairman:

A. T. Lindley—Superintendent of Schools, Lafayette, Indiana

Resource People:

Miss Lucy Bachman—Part-time Instructor in Education, Indiana University
Miss Margaret Hunt—Elementary Principal, Franklin, Indiana
Edward James—Architect, Indianapolis, Indiana
Mrs. Margaret Mercille—Instructor and Critic Teacher in the Elementary School, Indiana University

Mrs. Leonard Miller—Vice President, Region 6, Indiana Congress of Parents and Teachers
Lawrence B. Perkins—Architect, Chicago, Illinois
Walter Scholer—Architect, Lafayette, Indiana
Miss Ruth Strickland—Professor of Education, Indiana University
R. N. Tirey—President, Indiana State Teachers College
Wayne Weber—Architect, Terre Haute, Indiana
W. W. Wright—Dean, School of Education, Indiana University

Recorders:
Clyde Moyers—Graduate Assistant, School of Education, Indiana University
Bob Havert—Student, School of Education, Indiana University

II. BUSINESS EDUCATION SECTION

Chairman:
H. L. Smith—Dean Emeritus, School of Education, Indiana University, and Director, School Building Planning, Indiana State Department of Public Instruction

Resource People:
Wilbur Barnhart—Board of Education Offices, Indianapolis, Indiana
Burley Bechdolt—Director, Research Services, Indiana State Teachers Association
George Bond—Trustee, Wayne Township, Fort Wayne, Indiana
Elvin Eyster—Chairman of the Department of Business Education and Office Training, School of Business, Indiana University
Darwin Stevens—Director of Distributive Education, Greencastle, Indiana

Recorders:
William Bennie—Instructor in Education and Critic Teacher, Miami University, Oxford, Ohio
Don Casey—Student, School of Education, Indiana University

III. COMMUNITY USE AND ADULT EDUCATION SECTION

Chairman:
Nelson Swift—Trustee, Perry Township, Indianapolis, Indiana

Resource People:
E. P. Bardwell—Coordinator of Postwar Planning, Indiana University
Paul Bergevin—Director. Purdue-Indiana University Community Services, Indiana University
Karl Bookwalter—Director of the Bureau of Service and Research, School of Health, Physical Education, and Recreation, Indiana University
Ollie T. Bosee—Superintendent of Schools, Milltown, Indiana
B. L. Dodds—Director, Division of Education and Applied Psychology, Purdue University
C. E. Eash—Principal, Warren Central High School, Indianapolis, Indiana
Richard Emery—Director of Distributive Education, Indianapolis Indiana
L. A. Lockwood—Superintendent of Schools, Columbus, Indiana
Spencer Myers—Assistant Superintendent of Schools, Gary, Indiana
Raymond Sant—Superintendent of Schools, Cayuga County, New York

Recorders:
Wayne Swihart—Principal, Camden, Indiana
Henry Seger—Principal, Milan High School, Moores Hill, Indiana

IV. AUDIO-VISUAL SECTION

Chairman:

Merle Abbett—Superintendent of Schools, Fort Wayne, Indiana

Resource People:

George H. Bush—School Building Specialist, Purdue University, West Lafayette, Indiana

Billy Robert Cox—Superintendent of Schools, Brownhelp, Ohio

Jack Elzay—Superintendent of Schools, Downers Grove, Illinois

Perle Fisher—President, Audio-Visual Education Department, Indiana State Teachers Association

Lawrence Foote—Allen County Superintendent of Schools, Fort Wayne, Indiana

Harvey Frye—Supervisor, Graphic Arts, Audio-Visual Center, Indiana University

Edward R. Glenn—Superintendent of Schools, Boonville, Indiana

P. W. Holaday—Director, Visual Instruction, Shortridge High School, Indianapolis, Indiana

L. C. Larson—Director of the Audio-Visual Center, Indiana University

George McIntire—Director, Audio-Visual Education, Michigan City, Indiana

Clyde Miller—Director of Visual Education, Gary, Indiana

Homer E. Salley—Head of the Audio-Visual Department, Louisville Public Library, Louisville, Kentucky

Karl Schwarz—Architect, South Bend, Indiana

Ralph W. Sheek—Superintendent of Schools, Franklin, Indiana

Garret R. Weathers—Director of Visual Education, South Bend, Indiana

Roger Zinn, Associate in Production, Audio-Visual Center, Indiana University

Recorders:

Robert A. Marx—Teacher, St. Louis Public Schools, St. Louis, Missouri

Dale Pence—Principal, Pouk Township Consolidated School, Huntington, Indiana

V. RADIO AND TELEVISION SECTION

Chairman:

Custer Baker—Superintendent of Schools, Johnson County, Franklin, Indiana

Resource People:

H. E. Binford—Superintendent of Schools, Bloomington, Indiana

Harry Davidson—Superintendent of Schools, New Albany, Indiana

McCabe Day—Director of the Audio-Visual Center, Huntington, Indiana

Herbert Erdmann—Administrative Assistant to the Superintendent of Schools, Evansville, Indiana

Russell E. Helmick—Principal, Holmes High School, Covington, Kentucky

T. A. Kleckner—Director of School Inspection and Special Education, Indiana State Department of Education

Frederick Louis—Architect, Louisville, Kentucky

Frank Mullen—Division of Audio-Visual Education, Indiana University

George Johnson—Director of Radio Educational Programs, Department of Radio, Indiana University

Arthur H. Rice—Managing Editor, *The Nation's Schools*, Chicago, Illinois

William Stern—Board of Education, Gary, Indiana

Fred Swalls—Professor of Educational Administration, Indiana State Teachers College, Terre Haute, Indiana

William Voorhies—Director of Radio-Television, Bloomington City Schools, Bloomington, Indiana

Recorders:

Warren E. Carpenter—Science Teacher, Madison, Indiana

Osville Glass—Principal, Hanover High School, Hanover, Indiana

---

All meals must be purchased individually, since dining halls will not be open. Conference guests are welcome at the University cafeterias and the Union Club.

Address inquiries to Paul W. Seagers, Associate Professor of Education, Indiana University, Bloomington, Indiana.

ELEMENTARY SCHOOL SECTION

Report by

MRS. MARGARET MERCILLE

Planning the educational environment for the elementary child requires recognition of the things that must take place in this environment. Social changes demand added functions and facilities different from those of the traditional school. Today is the era of small homes. A small home limits the varied experiences and duties a child may have. It also limits the space in which a child may move about and play. Family size has increased, especially for those of the middle and upper socio-economic levels. These families are requesting more services of the school.

These new patterns in family living are reflected in demands upon school functions. Changes in communication, alone, have been a major factor in social change. Radio, magazines, newspapers, telephones, modern textbooks, and, most recently, television are at our disposal. We must accept these changes and use them to their greatest advantage in the educational environment of the modern elementary school. Transportation has been another factor in social change. The size of the area serviced by today's schools is much larger than that of 50 years ago, when the major proportion of the children lived within walking distance of the school plant. This increased enrollment has demanded such additional facilities as cafeterias, garages, and auditoriums. Social changes have also brought about heightened awareness of health needs with the consequent call on the school for added facilities. The doctor, the inspecting nurse, the dentist, and even the barber in some of our modern schools must be adequately housed.

As a by-product of our social change there has occurred an increased knowledge of child growth and development. This knowledge has revolutionized such things as schoolroom interiors, equipment, lighting, and color schemes, as well as the exterior of the school plant. To facilitate this new program the school must be functional both in design and use. It must recognize certain educational forces in the life outside of the school. It must recognize that the kindergarten and nursery school are an integral part of the school system. It must realize that cafeterias, playrooms and areas, and facilities for community use are an essential part of the elementary school.

To implement the above principles, those in the group concerned with elementary school buildings make the following suggestions:

School plant. The campus type of school plant will best meet modern educational needs in most climates in the United States. Inside and outdoor classrooms, extensive play facilities, workshops, and gardens must receive consideration.

The building. The one-story building is practical and desirable. Such a structure is cheaper and safer, has a lower maintenance cost, is more easily lighted, and provides a more homelike environment. This

building can be constructed of combustible materials rather than materials of the fire-resistant type. The difference in construction costs will more than pay the difference in insurance rates.

Exterior of buildings. Discussion concerning the exterior of buildings may be summed up as follows:

1. Glass block was considered by some of the group as inferior to pane glass for lighting. Suggested defects of glass block lighting included such things as glare, lack of space illusion, and leaks. Blocks are seldom cleaned and are difficult to replace. There have also been difficulties due to poor installation. It was pointed out that probably most of these physical difficulties have been overcome in recent buildings.
2. Single-loaded corridors are preferred.
3. Extended roofs provide better sheltered areas and glare-free classrooms.

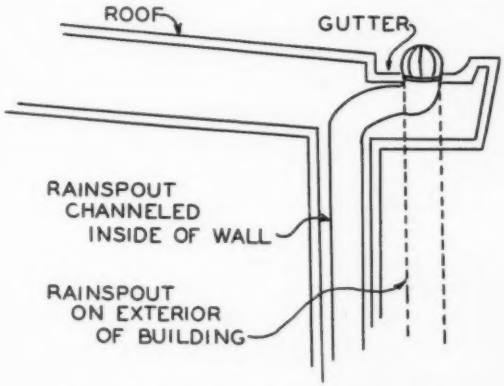

Figure 1. Diagram of Sheltered Rainspout

4. The suggestion was made that roof drains, downspouts, or leaders be built inside the building to keep them from freezing. (See Figure 1.)
5. Some members of the group favored northern exposure for schoolrooms.

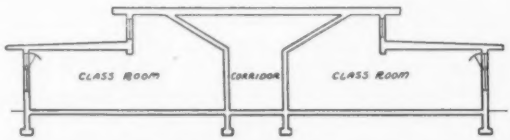

Figure 2. Monitor Roof Double-Loaded Corridor Construction

6. Hard surfaced areas extend the season of outdoor activities.
7. There are effective ways of having clerestory lighting with a double-loaded corridor. (See Figures 2 and 3 for examples.)

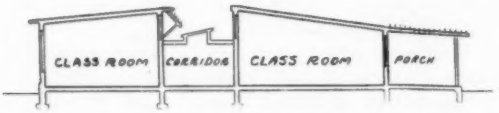

Figure 3. Clerestory Double-Loaded Corridor with Depressed Roof

Cafeteria. The cafeteria was considered the most suitable area for multi-purpose use. It is possible to use this room for music and band practice, speech and light dramatics, visual aids, community activities, and dances and other types of entertainment. This room is also suitable for such extracurricular activities as Boy Scout meetings, Hi-Y activities, and other school-community relationships. It must be remembered that cafeterias should be more than just "feeding stations"; they are places of social interaction. Storage space should be planned adjacent to the cafeteria to take care of the multiple use of this room.

It was suggested that students of the primary grades should be fed in the home rooms. This would require such equipment as food trucks, food warmers, and other facilities needed for movement of hot and cold foods.

The foyer. The following factors were considered pertinent regarding the foyer:

1. The foyer is frequently the best place in the school plant for exhibits.
2. The foyer should be located so that it is possible for it to be closed off from the rest of the building and still have accessible toilet facilities.
3. This area is considered a very good place for community gatherings, when properly planned.
4. If used as an exhibit room, the walls should be constructed of materials that will not be mutilated too badly through the use of thumb tacks. Materials suggested for use are ponderosa or white pine.

The gymnasium and auditorium. The combination gymnasium-auditorium is considered as not being satisfactory for the best educational situation. Separate auditoriums without windows have been built on sloping ground or excavated areas at low cost. The indoor physical education area should be planned as a playroom and should not be considered primarily as an area for competitive sports.

The stage of the auditorium should be appropriate for children's use; 30 inches seems to be high enough for stage floor height. Portable floor sections should be used for extension of the stage, for steps, or for "props" on the stage proper.

The maintenance rooms. One small janitor's closet for every two or three classrooms is recommended. A large centrally located closet

to service many rooms may cause many undesirable maintenance problems.

The classroom. Recommendation concerning the classroom follow:

1. The classroom should be of the "self-contained" type, with each room having its own outside exit, toilet facilities, equipment, and storage space.

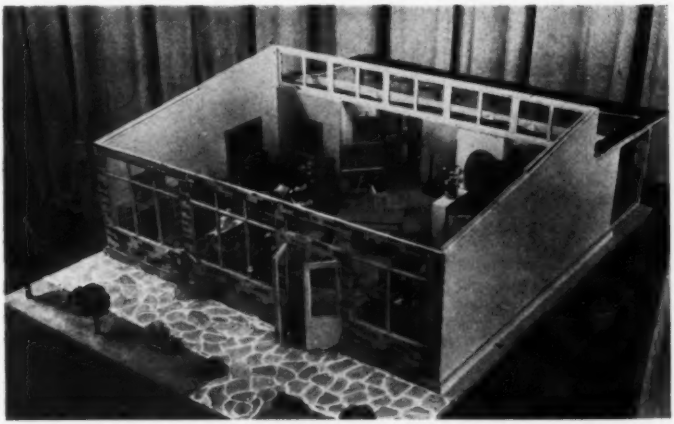

Figure 4. Model Primary Classroom Designed in Terms of Functional Interest and Activity Centers (View from Front)

Figure 5. Model Primary Classroom Designed in Terms of Functional Interest and Activity Centers (View from Front Corner)

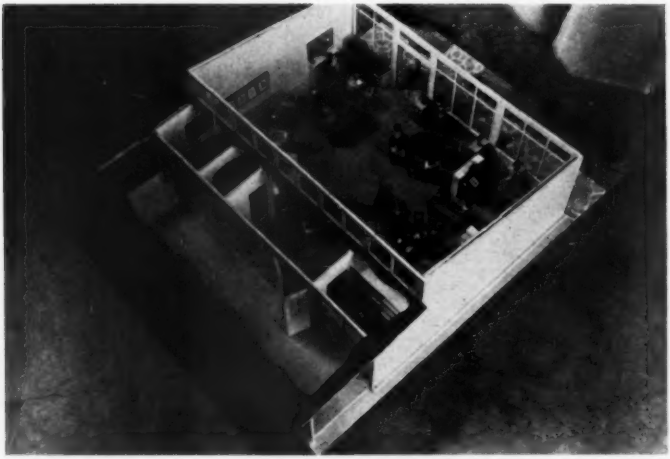

Figure 6. Model Primary Classroom Designed in Terms of Functional Interest and Activity Centers (View from Rear Corner)

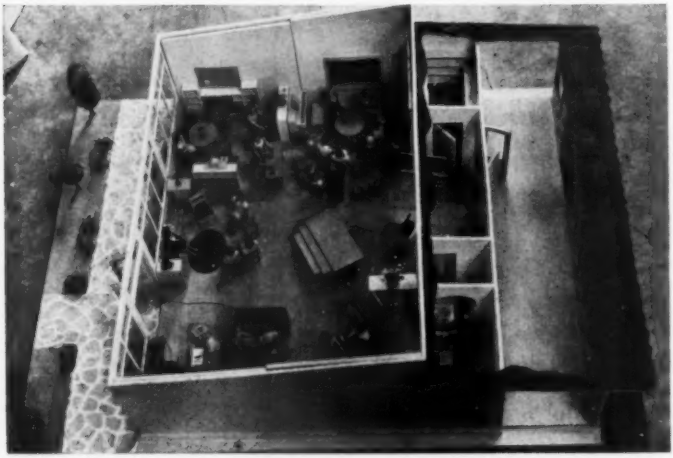

Figure 7. Model Primary Classroom Designed in Terms of Functional Interest and Activity Centers (View from Side)

2. Plenty of storage space for both students and teachers is essential. One method of providing adequate storage space is lowering the ceiling of the toilet room and using the space between the ceiling and the roof as a storage area. Drawstairs to this area will provide both an easy entrance and a door.

3. The square room, according to many participants, has more advantages than the rectangular room. This room should provide 30 square feet of space per child; enrollment should be limited to 30 children per room. A room of 900 to 1,000 square feet of floor area as a minimum can best serve present-day practices. (See Figures 4 to 7.)
4. A work area should be attached to the classroom for certain activities not appropriate to the classroom; such materials as a potter's wheel and equipment for work with clay can be used in this room. This room can also be centrally located for use by several classes.
5. The space immediately outside the classroom should be equipped and used as an extended outdoor classroom. Current practices indicate that an area of not more than one tenth of the regular classroom area is now being used for outdoor classroom purposes. The trend indicates, however, that from one half to two times the classroom area will be needed in the future.
6. An individual heating unit for each classroom has proved to be satisfactory both in cost and maintenance. Radiant heat is especially good in rooms housing little children.
7. The needed controls of light, such as draw curtains, or vertical or horizontal venetian blinds, should be determined by the orientation of the building.
8. Careful planning of lighting is essential. General level lighting, task lighting, and sufficient boosting of daylight by artificial means should be provided.
9. A slanting ceiling and bilateral lighting by means of clerestory provide excellent light and few shadows in the classroom.
10. Provision should be made for darkening an area within the room for the use of audio-visual aids, such as filmstrips and motion pictures. Black or dark green shades should not be used.
11. Color schemes and lighting must be considered together to produce an effective, pleasant, and interesting interior.
12. The new classrooms should provide for interest and activity centers, such as crafts, art, science, gadgets, music, reading, contemplation, consultation, conference planning, and many others. (See Figures 4 to 7.)
13. Furniture should not only be light finished and movable but it should be of a variety of sizes and types.

BUSINESS EDUCATION SECTION

Report by

WILBUR BARNHART

Although most departments in the high school have only one function to perform, business education is called upon to expand its services into three separate phases. These three distinct functions of business education lie in the fields of basic business, office occupations, and distributive education. Each of these three offerings calls for separate and distinct courses and activities; consequently, the school plant must be planned to anticipate and accommodate these three functions with all their implications.

In meeting the needs of the students who are studying basic business, the school needs many standard classrooms for the various courses as well as several rooms containing special equipment for the study of commercial geography, business law, and consumer education. Many facilities for visual aids and displays are required to supplement the classroom instruction. The office occupations courses need planning to allow for the different office machines needed for such courses as machine calculating and typewriting. Distributive education requires rooms in which the techniques and procedures of selling and merchandising may be demonstrated and work situations may be simulated. All three fields should contribute profitably to an adult education program, if such a program is in operation within the school system.

Underlying all three phases of the business education program will be found the same general responsibilities as are found in other departments of the school—those responsibilities of guidance and improving social attitudes and traits of students. In addition to this, the department carries some responsibility for helping the student obtain employment after he has demonstrated his vocational proficiency in the classroom.

The demands of the school of tomorrow will continue to call for all three functions, with increased emphasis upon basic business and distributive education and possible increased specialization in office occupations. In analyzing the future needs of the school plant, the following basic recommendations were discussed and adopted by the Committee on Business Education:

1. In the consideration of facilities and building specifications in business education, there is an imperative need for national standards arrived at by some competent authority. These should probably be worked out in cooperation with the research division of one or more universities. Particularly is this true in the specifications of furniture and equipment necessary to properly carry out the business education curriculum. Such items as the size of desks needed for adequate instruction in bookkeeping and typewriting and the amount of floor space needed per pupil engaged in such activities should be decided upon and proper recommendations should be made.

Equipment and furniture must be standardized before proper classroom plans can be made for building programs.

2. Attention should be given in the classroom to the utilization of audio-visual aids. Classrooms not equipped for projection of pictures should have access to a room which is so equipped. If possible, a projection room should be available on a departmental basis to minimize conflicts and schedules for room use, but in the small high school this may have to be done on a school-wide basis.
3. Rooms should be planned for multiple use. This principle of dual or multiple use must be applied both in the small and in the large high school because of the very diverse nature of the business education curriculum. Insofar as possible, this multiple use must be anticipated before plans for the department are drawn up, in order that required specifications for all classes utilizing the room may be met in the building plans. An example of multiple use of rooms in the small high school is shown in Figure 8 which gives the layout of a one-room business education department. There is justification for additional rooms in large high schools with small enrollments in some courses of the business education department by developing multiple-use rooms. Such courses as commercial geography, consumer buying, and commercial arithmetic could utilize the same classroom.
4. Attention should be given to displays and exhibits in built-in cases either in the corridors or in the classrooms and to adequate bulletin board facilities and rails or holders for maps and charts. These facilities are especially needed for use in the teaching of distributive education and basic business, where many specimen displays and exhibits are needed.
5. In the business education departments of large high schools, there should be a student center equipped for club meetings and suitable for the demonstration of receptionist techniques, leisure-time reading, and committee meetings. Such informal centers are conducive to improved social adjustment and lend themselves to group and committee work, much of which is done in the teaching of basic business subjects. In small high schools such rooms could be made available on a school-wide basis rather than on a departmental basis.
6. The needs of faculty members for office space, rest rooms, and toilet facilities should be met in a reasonable manner.
7. Adequate built-in storage space should be provided in all classrooms. While this is a factor for consideration in any classroom, it is particularly applicable in those that house business education facilities. Large quantities of paper, and such supplies as stencils, filing boxes, duplication supplies, and practice sets, call for the planning of large storage facilities.
8. In the large high schools, a department office for business education should be provided with adjoining facilities for reception room, storage space, and toilet facilities.
9. Provision should be made for conference rooms for counseling with pupils or with parents, for individual testing, or for pupil interviews

with prospective employers. These rooms should also provide additional space for club meetings and conference groups.

10. In view of the relative frequency of job placement in the department of business education, adequate space should be provided for a placement office, either in the general offices of the school or in the business education department. If the placement office is located in the general offices of the school, arrangements should be made for accessibility to records and personnel of the business department.
11. Classrooms should be equipped with work tables, reference libraries, and reading areas. In distributive education and basic business, groups studying different areas of interest must be accommodated in the classroom. The specialized nature of the departmental offerings necessitates library facilities in the classroom.
12. It is recommended that lighting in the business education laboratory should have a minimum intensity at the pupil station of 50 foot candles, as recommended by the Illuminating Engineering Society[1] for detailed office work, with consideration being given to contrast, color, and reflection. The electrical installations should be made with the anticipation of a possible outlet at every pupil station, and provision should be made for carrying the increased load.
13. It is recommended that the classrooms in which typewriting, machine calculation, bookkeeping, office practice, and distributive education are taught should be at least 32 feet wide. The first three should be 36 feet long and the last two should be 45 feet long.
14. It is recommended that the classrooms used in business education be laid out for learning purposes rather than to imitate the furniture and physical plan of business offices. While a businesslike atmosphere is desirable, utilization of space and economy require, above all, a good teaching-learning situation.
15. Where equipment is used, such as in the office practice course, machines which are alike should be grouped to facilitate more efficient teaching.
16. It is the judgment of the Business Education Section of the conference that the desk equipment in business education rooms should be of a flat-top variety, the size to be determined by the type of class work being done in each room.
17. Although the committee realizes that the business education department could operate satisfactorily on any floor of the school building, it would like to recommend that it be placed on the first floor of the building whenever this is possible. This is recommended because of the amount of supplies, equipment, and machines required. Accessibility to janitorial services and to the main offices of the school also makes the utilization of the main floor for the business education department advisable. It is recognized that other departments may have priority demands for this space, in which case the business department would have to take locations on other floors. Modern

[1] *Recommended Practice of Office Lighting*, Illuminating Engineering Society, New York, July, 1947, p. 8.

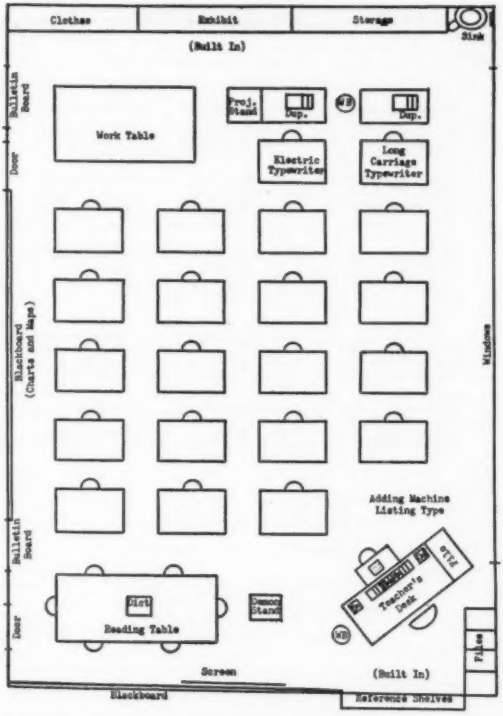

Figure 8. Layout of a One-Room Business Teacher Department

research on sound treatment makes insignificant any objections to locating the department on the first floor because of the noise element of the machines used.

Proposed Layout for a One-Room Business Teacher Department

The one-room business teacher department in the small high school has many problems which are peculiar to it Three of the leading problems have to do with: (1) the large number of subject preparations, (2) a satisfactory curriculum in business, and (3) the equipment and layout of the room.

Figure 9 shows a proposed layout for a one-room business department in which all business courses offered in the school will be taught. The proposed layout has not been developed to the point where dimensions have been worked out. It is being submitted for comment and criticism.

Some of the significant features of the layout are as follows:

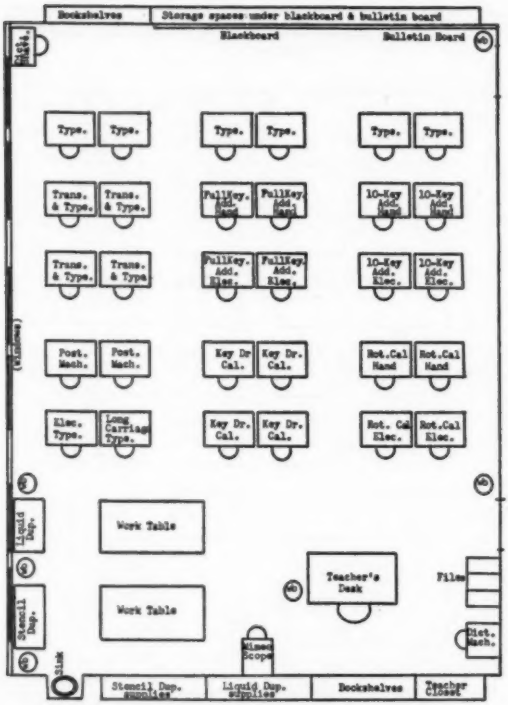

Figure 9. Layout Showing the Grouping of Similar Machines in an Office Practice Laboratory

1. Flat-top desks, either the drop-leaf type or tables with a protective metal strip around the back to keep the typewriter from falling off the table when it is moved to one corner while the desk is being used for non-typewriting class use.
2. Built-in storage cabinet, exhibit space, and book shelves.
3. Blackboards along the front and one side of the room.
   Blackboards along the side of the room reserved for "saved" material.
4. Work area in the rear of the room for whatever office practice work can be offered in a school of this size.
5. Reading table in the front of the room, for pupils to read and examine current material dealing with various projects under discussion in the basic business courses.
6. Adequate filing space for the storage of up-to-date leaflets and pamphlets needed.
7. Office space for the business teacher in one of the front corners of the room.

Planning Office Practice Laboratories

The office practice course. The term *office practice*, as used here, refers to courses that provide practice in various kinds of office work and a study of the related knowledges and skills necessary for such work. There are several types of office practice courses; all types are related but vary primarily in emphasis. Courses that emphasize the secretarial skills and knowledges are generally referred to as courses in secretarial office practice. The same basic course is frequently called clerical office practice when the emphasis is placed on minor bookkeeping and clerical duties for students without shorthand training.

Some schools offer a single office practice course for all students in the business field with the laboratory work varying for each student according to his background and educational objective. In large city schools offering vocational training, it may be desirable to offer separate unit courses in machine calculation and filing. However, the laboratory activities discussed here are for schools where it is necessary to offer machine calculation and filing units as parts of the office practice course. (See Figure 10.)

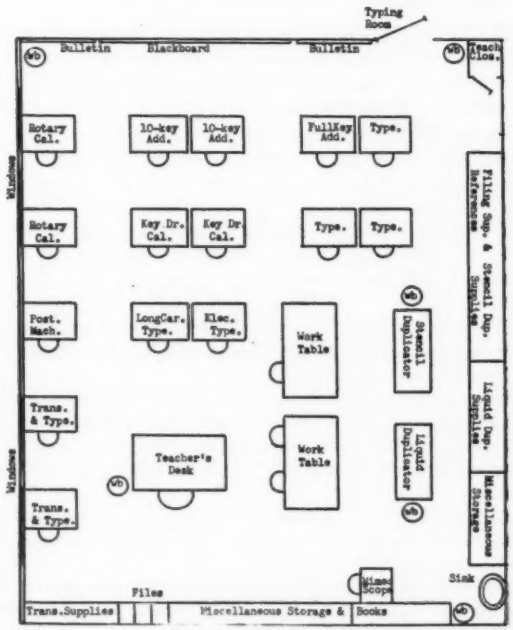

Figure 10. An Office Practice Laboratory for 15 Students

Typical activities in the office practice laboratory. The office practice laboratory should be planned to facilitate performance of the activities necessary for adequate learning in this area. A few of these activities that must be considered in planning are:

1. The operation of office machines such as typewriters, duplicators, calculators, adding machines, transcribing machines, and others.
2. The use of office reference books including postal guides, railway guides, telephone directories, city directories, hotel directories, secretarial handbooks, manuals of style, and other references.
3. The use of miniature filing sets and related materials such as books, file boxes, file guides, letters, and other supplies.
4. The performance of various clerical operations such as the collating and stapling of papers; folding, inserting, sealing, and stamping of mail; wrapping and weighing of packages; completing of business forms by handwriting and typewriting; and many other similar activities.
5. Class discussions of text and project materials and teacher presentation of information on a group basis.
6. Extension and application of previously acquired skills such as shorthand, typewriting, and bookkeeping.

Building facilities. In order to perform the foregoing and other activities adequately, school planners must consider both the physical characteristics of the laboratory and the equipment that is to be placed in the laboratory. Following are a few of the physical features that are desirable in the office practice laboratory:

1. The laboratory must have adequate and proper light. A minimum of 50 foot candles at desk level is recommended for the office practice laboratory. Also, while opinions of engineers vary, there seems to be some general agreement that it is desirable to provide a reflection factor of not less than 80 per cent for ceilings, of not less than 60 per cent for side walls, and of 30 to 40 per cent for floors and furniture.
2. The ceilings should have acoustic treatment as a minimum and, due to the noise caused by certain types of office machines, both walls and ceilings should be treated.
3. Numerous electrical outlets should be provided for office machines. While strip-type outlets along the walls may be satisfactory in some schools, most schools will find that adequate floor and wall outlets will provide greater flexibility in arranging equipment within the laboratory.
4. A lavatory should be provided in the office practice laboratory or the laboratory should be situated very near washroom facilities.
5. Adequate storage and filing space must be provided. The storage spaces provided in regular classrooms usually are not sufficient for the storing of filing boxes, duplicating papers and inks, adding machine tape, paper punches and cutters, and the many other miscellaneous items necessary in the laboratory. This storage space should not only be available, but it should be located so that the machines

requiring the most supplies may be placed adjacent to the supply cabinets. Adjustable shelving is a desirable feature in at least part of the storage space.

6. Chalkboard of 18 to 25 per cent reflection factor must be provided at least in the front of the room, as some of the activities in the laboratory are similar to those conducted in regular classrooms. Likewise, some bulletin board space is desirable in the office practice laboratory.
7. Storage space or shelves should be provided for pupils' books as there is seldom sufficient space at the desk for books, machines, and the materials with which the student is working.

Lighting Recommendations for Office Practice Laboratories

The Illuminating Engineering Society has prepared the following list of recommended values of illumination for office work.[1] These standards are quoted because of the similarity between office work and the activities performed in office practice laboratories.

	Foot candles recommended
Difficult Seeing Tasks	50
Involving:	
a. Discrimination of fine detail	
b. Poor contrast	
c. Long periods of time	
Such as:	
a. Auditing and accounting	
b. Business machine operation	
c. Transcribing and tabulating	
d. Bookkeeping	
Ordinary Seeing Tasks	30
Involving:	
a. Discrimination of moderately fine detail	
b. Better-than-average contrast	
c. Intermittent periods of time	
Such as:	
a. General office work (except for above)	
b. Private office work	
c. General correspondence	
d. Conference rooms	
e. Active file rooms	
f. Mail rooms	
Casual Seeing Tasks	10
Such as:	
a. Inactive file rooms	
b. Reception rooms	
c. Stairways	
d. Washrooms and other service areas	

[1] *Recommended Practice of Office Lighting*, Illuminating Engineering Society, New York, July, 1947, p. 8.

	Foot candles recommended
Simple Seeing Tasks	5
Such as:	
a. Hallways and corridors	
b. Passageways	

It is recommended that the standard of 50 foot candles be used for Office Practice Laboratories since most of the activities conducted in such laboratories are classified as *difficult seeing tasks.* For example, office practice laboratory activities usually include business machine operation, transcribing, and discrimination of very fine detail in reference sources such as railway guides, hotel directories, miniature filing sets, and other printed materials.

Selecting Machines for the Office Practice Laboratory

There are many factors to be considered in selecting office machines for use in office practice laboratories. A few of these factors are:

1. The need for machines and equipment as indicated by the frequency of use within the area which the school serves.
2. The employment opportunities for pupils so trained.
3. The aim of the course, and the plan of class organization.
4. The number of pupils to be trained.
5. The types of machines, and the simplicity of operation.
6. The initial cost, and the problems of maintenance and supplies.

The following lists of machines are in the nature of general suggestions only. Specific lists of equipment must be developed for each school situation, based on adequate study of the above factors and other considerations, such as those given on the next section of this report, entitled "Criteria for the Selection of Equipment for Office Practice Laboratories."

Criteria for the Selection of Equiment for Office Practice Laboratories

Criteria for the selection of equipment for office practice laboratories are as follows:

1. Equipment should be selected which teaches operating techniques for that class of equipment.
2. Equipment selected should permit development of satisfactory levels of skill in the time available for training. (Acquaintanceship, working knowledge, or expert skill depend upon the objectives of the training program.)
3. Consideration should be given to the availability of satisfactory instructional materials and low-cost supplies.
4. Low-cost, hand-operated models probably should be selected if these models can be used to teach satisfactorily all basic operations on a less than expert skill basis.
5. One or more power-driven models should be selected if curriculum objectives call for the development of expert skills.

6. One or more calculating machines similar to those in common use in the area probably should be included.
7. One or more adding-listing machines having direct subtraction probably should be included.
8. A variety of makes and models should be procured, provided new techniques are learned on the various models; otherwise no outstanding advantages accrue and service costs increase.

TABLE 1. MACHINES RECOMMENDED FOR OFFICE PRACTICE LABORATORIES

Type of machines	Quantities suggested		
	Small schools (10)*	Medium schools (20)*	Large schools (30)*
TYPEWRITERS			
Standard typewriters	10†	4	10
Electric typewriters		1	1
Long-carriage typewriters		1	1
DUPLICATING MACHINES			
Stencil-process machines	1	1	1
Direct-process (liquid) machines	1	1	1
Illuminated drawing boards	1	1	2
DICTATING AND TRANSCRIBING MACHINES (cylinder type)			
Transcribing machines		2	4
Dictating machines			1
Shaving machines			1
CALCULATING MACHINES			
Rotary calculators, hand-operated	1	1	2
Rotary calculators, electric		1	2
Key-driven calculators, hand-operated	1	2	4
ADDING-LISTING MACHINES			
Full-keyboard machines, hand-operated		1	2
Full-keyboard machines, electric	1	1	2
Ten-key machines, hand operated		1	2
Ten-key machines, electric	1	1	2
BOOKKEEPING MACHINES			
Portable posting machines, electric		1	2

* Maximum number of students recommended for equipment indicated.

† Typewriters are indicated as being available for all office practice students in the small class, as the office practice laboratory probably will have to be combined with a typewriting room.

9. It is usually better to purchase than to rent equipment if funds are available and long-term economies will result from owning the equipment. Specialized equipment to be used only a part of a year frequently may be rented more economically.
10. Supplementary and facilitating equipment used in modern offices, such as numbering devices, staplers, copy holders, etc., should be available.

In general, the following types of equipment probably should not be included in the office practice laboratory:

1. Very expensive, highly-complicated machines, unless immediate placement opportunities are available for skilled operators.
2. Equipment that one can operate after observing a brief demonstration by a skilled operator.
3. Equipment that can be operated efficiently after a relatively small number of hours of instruction and practice on the job.
4. Equipment, the operation of which most employers agree can be learned better under the supervision of their office supervisors.
5. Equipment that may become obsolete within a relatively short period of time.

COMMUNITY USE AND ADULT EDUCATION SECTION

Report by

SPENCER MYERS

In approaching the problem of planning educational environment for a new age relative to community use and adult education, the committee recognizes the following basic principles:

1. Specific facilities for community use will vary in each community, depending on the needs and facilities of that particular community.
2. Provision should be made for facilities that will meet the immediate and future needs of a community. Good facilities tend to encourage community use of school facilities.
3. It is the responsibility of educational leaders to initiate, develop, and administer a community educational program and to make available educational facilities to service such a program.
4. Adult education and community education flourish in a physical and teaching environment that is characterized by informality.

Classification of Community Activities

A classification of community activities for which the facilities of the school may be used and some common examples of these activities are given below:

1. Cultural activities of the community
   - a. Music
   - b. Art
   - c. Dramatics
   - d. Literature
2. Recreation, health, and physical education
   - a. Camping
   - b. Sports activities
   - c. Social games
3. Clubs and organizations
   - a. Committee meetings
   - b. Dinner meetings
   - c. Youth activities
4. Commercial enterprises
   - a. Exhibits
   - b. Entertainments
5. Vocational and apprenticeship training
   - a. Foremanship training
   - b. Apprenticeship schools
   - c. Trade extension
   - d. Distributive education
   - e. Agriculture
6. Special interest groups (short courses)
   - a. Hobbies and crafts
   - b. Current problems
   - c. Citizenship (service to immigrants)
7. Formal education
   - a. Extension courses for credit
   - b. Night school (high school)
   - c. General education (non-credit)
8. Library service in conjunction with public libraries
9. Services in time of emergency
   - a. Civilian defense planning
   - b. Catastrophes

Building Facilities and Equipment Needed to Service the Above Classification of Activities

It is the opinion of the committee that, if the facilities of the school are entirely adequate to meet all the needs of the pupils, these same facilities, if made available, will also be suitabe for use in the activities outined above.

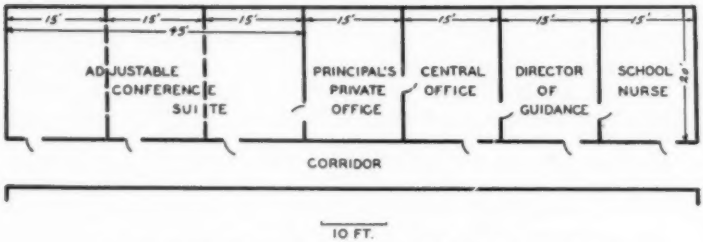

Figure 11. Conference Suite Adjoining the Principal's Office

However, where the following facilities are not available, the committee recommends their incorporation in the building plan.

1. A multi-purpose room for the community-centered grade school which includes the following features:
   a. Stage facilities
   b. Outside entrance
   c. Toilet facilities
   d. Proximity to food preparation center
   e. Rollaway table-bench combination for dining purposes

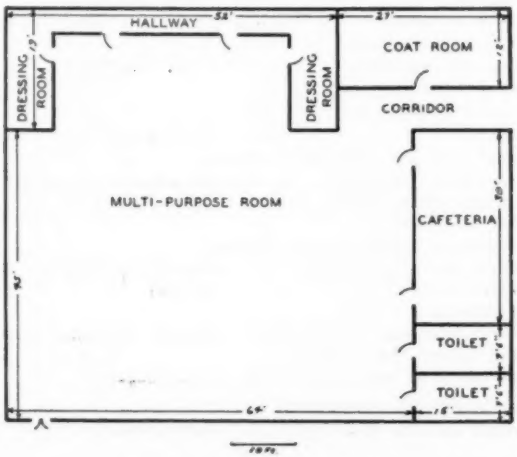

Figure 12. Multi-Purpose Room

f. Outlets for visual education
g. Construction such that it can be operated as a separate unit.

2. Conference suite adjoining the principal's office
   a. Size—1½ classrooms
   b. Adjustable partitions to control size of rooms
   c. Furniture suitable to create informal atmosphere

The committee recommends that the gymnasium, auditorium, cafeteria, conference suite, multi-purpose room, shops, and a wing of classrooms which are most frequently used in community activities be constructed so that they may be operated as separate units. (See Figures 11 and 12.)

Sketches of a suggested multi-purpose room and administrative suite are given below.

AUDIO-VISUAL SECTION

Report by

WILLIAM FLOYD

Morning session. The audio-visual and television sections met jointly at 10 a.m. in the Bryan Room of the Union Building to discuss the general principles of their phase of the program.

The discussion began by listing the following essentials of an audio-visual program:

1. The program must be feasible.
2. It must be integrated with the curriculum.
3. Teachers must be given a background in utilization.
4. There should be a full-time director.

In school systems of 100,000 or less, and in county systems you need a director who can work in curriculum development as well as in the audio-visual field. One man can hardly have all the necessary abilities. You will need to use people from all areas in a coordination of activities. As a result of this, much of the staff at the center will be working only on a part-time basis. All of this will affect the type of school plant needed.

Audio-visual materials serve a function which will do much toward liberalizing and enlarging the school curriculum as well as toward enriching the program. These materials help to bridge the gaps between subject areas and also help the student see the desired relationships.

Radio has a definite function in this program. Radio materials are not geared for specific classes; if they coincide, it is by accident. It is a mistake to consider radio as being merely an addition to the curriculum. It must be considered a part of the search toward a broader curriculum. In the past we have been so wedded to subject matter that we have failed to take advantage of important radio programs. Worthwhile materials broadcast after hours have not been considered by teachers as having a place in the regular school day. Children should be asked to listen to some of the radio programs that are valuable to them at times outside the school day. They should also be asked to see certain good moving pictures, providing the children are financially able.

Transcriptions of important events are made by nearly all stations. Thus far, teachers and administrators have not been made aware of the availability of such materials.

Schools must start early in the elementary grades in the process of training students to acquire competencies in the use of radio, television, movies, and comics. It is conceivable that, in the years to come, students may correspond by means of tape recorder instead of the traditional letter. In the same manner, photography may be used in the schools as a means to an end. A class might report back its findings illustrated by photographs. Schools must teach people to communicate via these materials.

The public has not yet been completely sold on the utilization of audio-visual materials, but its interest can be gained through giving it experience in the field. By making audio-visual materials available to the community, the maximum use may be had of these materials before they become obsolete.

We have been behind in education in the past for two reasons:

1. We have been pushed just to get housing and teachers.
2. We have needed to expend so much in maintaining national economy and national defense.

If we get our economy to the place where we catch up in some of these other areas, we in education must be ready to tie into some of these vast resources. For example, there is a definite possibility of piping out programs by telephone lines when these resources are made available.

Another medium of communication still in its infancy is educational radio stations. The main reason for the school radio is to bring to students and the public the type of programs that are not available through regular stations. These programs are not designed to be spectacular, but only to portray the school's personality. There is a strong movement toward small 10-watt FM stations. School buildings should be found in the schools of tomorrow.

The immediate question facing school building planners is: Shall we attempt to fix up our old buildings with some of the base essentials for carrying on adequate audio-visual programs or shall we save our money for new and modern buildings?

Afternoon and evening sessions. The afternoon and evening sessions of the audio-visual section were held independently of the radio and television section. Those in the group then directed their thinking toward developing some recommendations for school buildings that would provide for the many audio-visual activities that will most likely be found in the schools of tomorrow.

The recommendations of the audio-visual group fell into the following categories: (1) size of classroom, (2) acoustical treatment, (3) projection of materials, (4) production of materials, (5) filing of materials, (6) use of materials for reference, (7) selection of materials.

1. Size of classroom

   The classroom should contain at least 900 to 1,000 square feet. The average classroom is not large enough to take care of the many new activities in the audio-visual field. The classroom of tomorrow needs to provide adequate space for multiple use. The laboratory technique of teaching, which will be used more in the future, will often require that several activities be carried on simultaneously.

2. Acoustical treatment

   The general feeling is that in the last 15 years more progress has been made in acoustics than in most other fields. The room should be designed to facilitate the best in acoustics and prevent excess reverberations.

3. Projection of materials
   a. Outlets
      Outlets should be located on three sides of the room for convenience and accessibility. Conduits should also be provided that will be large enough to take care of any future advancements in the fields of television and photography.
   b. Screens
      It is recommended that screens be provided that will be both usable and convenient. In the present trend toward increased flexibility in the classroom, there will probably still be a place for a few fixed screens as well as for those that are portable.
   c. Lighting
      The trend in lighting seems to be away from the idea of complete darkness in a classroom for projection. Instead, a diffused lightness over the front of the room to decrease the brightness difference of the screen with its adjacent surfaces will lessen eye strain. There is also a definite advantage that results from providing individual light to students to allow for seat work while projection is taking place. At the present time this is quite expensive, but in time may be made available to schools.
   d. Darkening
      One of the most pressing problems in projection is that of controlling natural light from the windows. Complete darkness is not necessary, but rooms should be equipped to the point where light from the windows may be brought to a degree of subdued light. Window coverings should have the following characteristics:
      (1) Be attractive
      (2) Be easily cleaned
      (3) Be easily and quickly operated
      (4) Be durable and of good quality
      (5) Contribute to acoustics and prevent reverberations
      (6) Draw back into a compact mass, so as not to exclude light when not in use
      (7) Overlap adequately, so that wear does not cause a leakage of light in the center
      (8) Be fire resistant
   e. Number of projectors
      It is doubtful if one projector for each room can be justified. When more teachers are taught to use the materials, however, there will be increased need for more projectors. The number will always be determined by the frequency of use in any particular school system. If you assume a use of once a week in each class, you arrive at a ratio of one projector for each five teachers in the system.
      There is a definite trend toward increased use of projection in the regular classroom. A projection room often causes a teacher to schedule three or four short films at once to economize on time, regardless of how they fit into the day's class work. In

relation to frequency of use, a ratio of one to five would involve one projection room for each five teachers, and the cost would be much greater than that involved in equipping each classroom for projection. On the other hand, there may be a place for at least one projection room for special projection to bring out color and details, and to provide a place where ventilation can be controlled.

f. Type of projectors

Scientific developments in recent years have produced more lightweight projectors. Light projectors of good quality are excellent for classroom projection, since experience has shown that it makes little difference in reception if the speaker is in the front or back of the room. There is an optimum level, however, where quality will be sacrificed for weight.

g. Special projection booths

Special booths for projection equipment have not been used extensively in the schools. There is a certain psychological value in having the equipment out of sight. Also, the noise of the machine can be muffled if the booth is treated with acoustical tile. The distractions caused by noise are not so important to young people as they are to adults, and it is doubtful if they are justified in schools. They may, however, provide a handy way to keep equipment safely locked away and, if large enough, may serve as listening booths for recordings.

4. Production of materials

If the school has a good art department, there may be very little needed in addition to the equipment and space for the simple types of production, such as still pictures, lantern slides, and graphic materials. It would be convenient to have a small room where teachers and students could develop materials for personal and classroom work. This room should include a large table for mounting and cutting as well as a dry mounting press. The room might easily be combined with the print shop or mimeographing department where space is limited.

An increased use of photography in the schools will make it necessary to provide a small dark room for developing pictures.

An acoustically treated room for student recordings and recordings of radio broadcasts will be needed to facilitate maximum use of radio programs. Some outstanding programs should be recorded by experts in the audio-visual center, but many programs for individual classes might be recorded by students and teachers.

5. Filing of materials

Rooms must be provided with filing and shelving facilities to gain maximum use of audio-visual materials. Different grade levels will need different kinds of filing equipment in varying amounts. There will be a need for:

a. Files for still pictures
b. Files for home-made lantern slides
c. Built-in cupboards

d. Cases for object materials, specimens, exhibits, etc.
e. Increased amount of tackboard
f. Storage room for materials that are used only occasionally

6. Using of materials for reference

School building planners need to look forward to the time when audio-visual materials are used for reference just as books are used in the library. This might involve considerable cost in building a library of materials. It is conceivable that a library of films, filmstrips, slides, etc. might be brought into the classroom for a specific unit of work and then be passed on to other classes. This would make it necessary to provide space for filing and shelving the materials while they are kept in the room.

7. Selection of materials

Material that is bought must be selected very carefully. The usual procedure is to base purchase of materials on the effectiveness of its use in a classroom situation. At the close of the year teachers should give their opinions on the films they have used that year. There will be little need for special preview rooms except for the selection of materials for use in an individual class. Many teachers send a committee of students to select the materials to be used in a classroom situation, and some small room will have to be made available for this purpose.

Basic General Statements

The audio-visual section closed its group discussion by formulating a set of basic general statements to be used as a guide for school building planning. These are as follows:

1. Since the curriculum comprises all the learning experiences, and since audio-visual materials are to be considered an integral part of the curriculum, audio-visual materials should be included in the planning of school buildings.
2. Every reasonable step should be taken to make audio-visual materials both accessible and usable in the classroom learning experiences.
3. Each building should have facilities for making minor repairs, such as splicing film, oiling, and replacing bulbs.
4. The auditorium should be equipped to take care of larger groups in assembly programs. Films of a general nature that might or might not apply to any specific subject could be shown.
5. The cafeteria, if properly equipped, may become a multi-purpose room. Provision might be made for recorded music during the lunch hour and for use of the room by adult groups.

RADIO AND TELEVISION SECTION

Report by

WILLIAM VOORHIES

Mr. Baker opened the meeting of the Radio and Television Section by explaining the purposes of this section. He stated them to be:

1. Discussion of the various types of activities which will be used by educators in utilizing radio and television.
2. Discussion of the building and equipment needs for those activities to function well in the future education program.

From the discussions of the guests and research people, it is the opinion of alert educators that we should be especially aware of the latest methods and trends in education, and that the importance of the school plant cannot be overly emphasized in the planning of a functional educational program. Education is lagging behind society when we fail to offer the child experiences which are common to the lay public. Since the children of today and tomorrow receive a large share of their information from radio and television, the future school plant must include these new educational agencies.

The convictions of the members of this workshop section are:

1. Television and radio are used in everyday life and we must learn to use them in school for the educational development of the child.
2. School radio stations offer an opportunity for the expression of school personalities.
3. Schools should teach students the use and production of mass media of communications as well as how to evaluate them.
4. Radio and television may aid in the development of a public relations program which will help to bridge the gap between the home and the school.
5. Teachers and administrators should take the iniative in instructing students in the use of radio and television.
6. Schools must aid the students in developing habits of discriminatory reading, listening, and viewing.
7. The audio-visual program should stem from the curriculum and be functional and efficient. The importance of this program in the coordination of subject matter should not be overlooked.
8. If we are to have coordination of subject matter, the physical plant must be arranged so that all teachers have a part in the total audio-visual program.
9. Radio and television will serve to supplement the extracurricular activities in the various parts of the school.
10. The ever-growing importance of radio and television stems from their quality of increasing receptivity and retentivity of the mind.

After consideration of the above convictions, various types of activities of radio and television were planned as a part of the regular school curriculum. It is advisable to discuss these under the headings of (1)

listening, (2) viewing, (3) copying of materials, (4) the use of radio and television reference materials, (5) the use of other kinds of audio-visual materials, (6) listening at home, (7) special classroom procedures to be broadcast by radio and telecast by television from classroom to classroom, (8) actual classroom broadcasting from the school to the various publics by way of school-owned radio stations, and (9) special dramatic productions from the commercial radio studios.

To carry out these activities the schools should plan the building needs and purchase equipment which is essential for stimulating learning situations. The value of any equipment is dependent on the use to which it is put, regardless of its cost.

Listening Activities

In a listening activity, a central sound system located in an acoustically-treated radio studio is recommended. A monitor speaker must be at the principal's desk, so that he may monitor all channels at his discretion. The principal should also have a microphone and a master switch, so that he may interrupt any radio or television program he wishes for necessary announcements. There must be outlets for microphones in such locations as the gymnasium, cafeteria, and auditorium; each classroom and corridor of the building ought to contain individual adjustable speakers. In connection with this central sound system a workshop located near the radio studio should be provided. It is also suggested that portable FM and AM radios be located on each floor and eventually planned for in the separate classrooms. Large multi-purpose classrooms with work areas are very desirable. A master antenna with outlets in every room would aid in receiving the broadcasts. Outlets for outdoor speakers near the athletic fields, playgrounds, and other outside places for public gatherings are a "must" in modern school planning.

Viewing Activities

To carry out the viewing type of activity, each floor of the school should have portable television receivers of the direct vision 24-inch tube type. These may be plugged into the master antenna which will reduce the amount of distortion. Multiple installations may be used; however, they are expensive and are very difficult to maintain. Maintenance for these units could be done in the general school workshop. This would provide experience for the student and keep maintenance charges at a minimum.

Copying Materials

There are several mechanical methods of copying materials, such as disk recorders, wire recorders, and tape recorders. This group suggests that educational workers use the single track, 7½-inch speed portable tape recorder. This type of recorder is an entirely electronic device which eliminates surface noise, can be played thousands of times

without loss of tone or quality, and can be erased automatically and immediately re-used. The other types of recorders are suitable for particular occasions, and if the school has the trained personnel for their operation, they would be of extreme value. These recorders may be located in the workshop, library, radio studio, and such special rooms as the speech classroom. This activity lends itself to radio-produced facsimile, especially in the larger school systems.

The Use of Reference Materials

Reference materials concerning radio and television should be centralized in the school library if the school is small. In large school systems all audio-visual materials should be located in a central office. Such materials as films and reference tapes ought to be stored in adequate, air-conditioned, fire-resistive cabinets. Convenient listening booths could easily be installed in the library or in a room adjacent to it. The small type booths should be approximately 4 by six feet and the larger size approximately 4 by 10 feet. Tape or other types of recorders should be located in each booth so that reference tapes can be easily utilized. In case listening booths are not provided, one small booth with a recorder and earphones could be used effectively.

Listening at Home

Since schools are interested in education for the handicapped, it is the duty of those who plan the school plant to make some provision for assisting them in their homes. This may be accomplished by providing a direct telephone line to the home of the unfortunate. Conduits ought to be built in the school with outlets in each room. For this "intercommunication system" each classroom needs a receiver and a microphone, and each home needs a receiving and transmitting equipment box. The telephone company will furnish the receiving and transmitting box and microphone at a nominal fee.

Special Classroom Broadcasting

In the special classroom for broadcasting and telecasting, there should be provided desirable acoustical properties, a floor of soft pine wood approximately 30 by 60 feet, and a location on the ground floor. This room may include a special temporary space or a permanent position for the television camera. A garage-sized door is necessary for mobile television units to be brought in for special occasions. Outlets need to be installed that will carry 4,000 watts at 110 volts, and connections must also be accessible to the master antenna. Various rooms, such as the workshop, art room, industrial arts shop, music room, and radio studio, should be near to provide supplementary materials.

Special Rooms

Special rooms for radio and television are desirable in the school plant. These may include radio studios, a control room, a store room, a

previewing room for television, a continuity room for typing and office work, and a general workshop.

The radio studios and control room will need specific consideration in its construction to meet the purposes for which it is designed. These rooms should be located on the ground floor and air-conditioned to protect the equipment against extreme temperatures and humidity. Engineers should plan these rooms so they have the best in acoustical properties; even entrances leading from the studios may use quiet-closing and sound-insulated doors. A communication system, separate from all other means, between studios and control room must be available at all times. Plate glass windows, separated by an air space and set at an angle to each other, should be part of the wall separating studios from the control room. Clocks with sweep second hands are of primary importance in these rooms. The regulation of all lighting in the studios should be centralized in the control room; and outlets, adequate to accommodate all required circuits ought to be easily accessible in all parts of the studio. A 10-watt transmitter, antenna and mast, two turntables, a control room console, microphones, stands, cables, monitor speakers, and extra tubes are all necessary items of a 10-watt FM radio station.

A previewing room for television films and an air-conditioned storage room for filing and equipment should be located near the studios. This equipment should be carefully tabulated and regularly inventoried. The size of these rooms is dependent on the size of the school and broadcasting system.

It is suggested that a general workshop be available for the maintenance of the radio and television equipment as well as for the supplies for testing, replacing, and repairing all audio-visual materials. Educators need to plan this room carefully and to provide large cabinet and table areas.

Television requires more planning, creates more problems, requires more materials, and brings greater expense than radio. Schools will do much less production of television than of radio; however, more students will be involved in television because of a great variety of activities. The importance of radio and television is being further realized daily; therefore, all schools should be prepared for their potentialities by providing adequate facilities for them in all future buildings.

Selected materials from Indiana school stations WVSH, at Huntington, and WNAS, at New Albany, and pictures of the Louisville (Kentucky) Public Library FM Radio Station follow:

Selected Materials from Station WVSH

RADIO STATION WVSH
School City of Huntington
Huntington, Indiana

Radio station WVSH, "The Voice of the Schools of Huntington," is the second 10-watt FM broadcasting transmitter in the state of Indiana to be operated by a public school system, and represents the most recent achievement of the Audio-Visual Center of the School City of Huntington, Indiana, to present a complete audio-visual program of instruction in the classroom.

Unique also is this radio station in that it is the gift of the Class of 1950 of Huntington High School. In line with the tradition of the senior class leaving a useful gift to the school, the Class of 1950 made possible the installation of the equipment which will serve not only the school but the community as well.

The dressing room at one side of the high school stage has been converted into a studio and control room, and the location makes possible direction of broadcasts from the auditorium stage. The antenna location on the roof of the high school provides the highest point in the city for the transmission on the FM band at 88.1 megacycles.

With a population of 15,000 and a school system including seven buildings, 100 teachers, and 2,300 pupils, Huntington is probably one of the smallest cities to provide such broadcasting facilities owned and operated by the school. No commercial radio station has been located in the city since the early days of radio, so the school station has an unusual opportunity to serve as a community outlet as well.

The equipment was installed during Christmas vacation, 1949, and tests began on New Year's Day with the Class of 1950 opening the year 1950 by the use of its gift to the school. A Dedication Broadcast was held January 19, 1950, with a two-hour program broadcast from the high school stage. Included in the program as guest artist was a graduate of HHS in the Class of 1916, Jane Anderson, concert pianist of Chicago. Other former graduates taking part were Fred Brewer, script writer for the Indiana University School of the Sky ,and Milt Marx, sports announcer for Station WOWO, Fort Wayne. The program also included high school talent, and congratulatory messages by civic leaders.

The station began a regular broadcast schedule of one hour each school day on January 30, 1950. The programs have included participation by pupils from both grade schools and high school. Transcribed programs are also used, presenting material suitable for classroom use. With nearly 30 hours on the air in broadcasting the sectional basketball tournament in its entirety, Station WVSH made many friends in the county, where it was heard over the entire area represented in the play.

The broadcasting station is operated under the audio-visual center, of which M. McCabe Day is full-time director. During his three and one-half years as director, after having been a teacher in Huntington High School for 25 years, Mr. Day has expanded the program in Huntington so that every school building has its own motion picture projector, filmstrip projector, and slide projector, and six have centralized sound systems. The interest and cooperation of H. Burton Stephan, superintendent, and the members of the school board has made this progress possible.

STATION WVSH
Audio-Visual Center
School City of Huntington
Huntington, Indiana
Phone 1006

Installation costs

10-watt transmitter	$1,575.00
Antenna and mast (labor of installing)	92.77
Control room console	435.00
Extra set of tubes	36.17
Rack panel installation	163.87
Microphones, stands, cable	198.01
Bannon connectors	38.79
Miscellaneous, including express on equipment	55.53
	$2,595.24
Cost of room alterations, materials only	$400.00

Labor on room done by school maintenance workers.
Much labor in installation done by two senior boys.
Advice and some help from licensed radio operator.
First best broadcast—January 1, 1950.
On air from 2:30 to 3:30 p.m. each school day.
Dedication broadcast held Thursday, January 19, 1950—8 to 10 p.m. Broadcast from high school auditorium stage.
Remote line laid through heat tunnel to gymnasium three blocks away.
Remote preamplifier ordered for game broadcasts $235.00

RADIO STATION WVSH
AUDIO-VISUAL CENTER
SCHOOL CITY OF HUNTINGTON
Huntington, Indiana
Phone 1006

Weekly Schedule Beginning Monday, January 30, 1950

TIME	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
2:30-2:45 p.m	U.S. Treasury "Guest Star" (ET)	Public Health (ET)	Songs of Nations (ET)	Echoes of a Century (ET)	School of Sky Guidance (ET)
2:45-3:00 p.m.	This Week in history and biography	School Music—vocal and instrumental	Story hours—reading	Once upon a time	Story hour—dramatized
3:00-3:15 p.m.	Adventures in research (ET)	School of Sky history (ET)	School of Sky science (ET)	School of Sky books (ET)	Bill Scott—Forest Ranger (ET)
3:15-3:30 p.m.	Know your schools	Social Studies panel	Meditations	Spelling contest	School news

ET—Electrical Transcription. Other programs are "live."

KNOW YOUR SCHOOLS

Jan. 30	High school	March	20
Feb. 6	Riley	March	27
Feb. 13	Mann	April	3
Feb. 20	Lincoln	April	10
Feb. 27	Central	April	17
March 6	State	April	24
March 13	Tipton	May	1

SOCIAL STUDIES PANELS

Jan. 31	Ritchie
Feb. 7	Ware
Feb. 14	Ellis
Feb. 21	Zahn
Feb. 23	Ritchie
March 7	Ware
March 14	Johnson
March 21	Ellis
March 28	Zahn

SPELLING CONTESTS

Feb. 9	4th grade
Feb. 16	5th grade
Feb. 23	6th grade
March 2	7th grade
March 9	8th grade
March 16	9th grade
March 23	10th grade
March 30	11th grade
April 6	12th grade

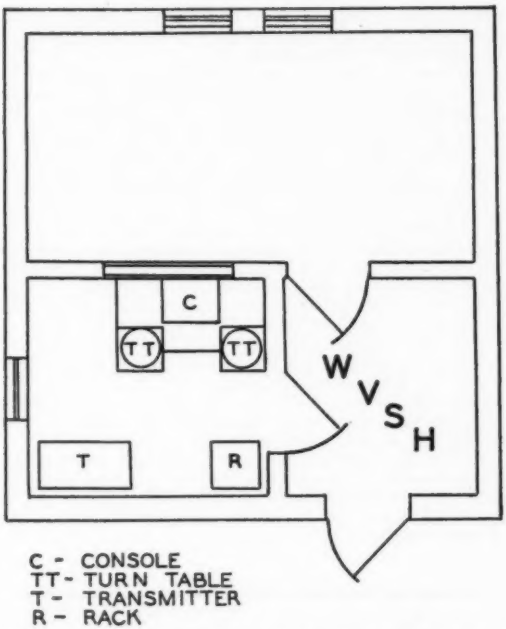

Figure 13. Floor Plan of the WVSH School Radio Studio at Huntington, Indiana

Selected Materials from Station WNAS

INTERESTING FACTS ABOUT WNAS

WNAS was the first low-power FM non-commercial educational station to be owned by a public school system.

The funds to purchase the transmitter and studio equipment were raised by the students of the city schools.

One half of the programs broadcast by WNAS are "live," and the other half are transcribed educational programs to the schools and community.

The students operate the equipment, do the announcing, and write and direct their own shows. In over half of the "live" shows, no adult has any part in the programs except to proofread the script for possible errors.

The station's student staff consists of two workshops of 20 carefully chosen seniors meeting during the two hours the station is on the air each day.

Many teachers and supervisors have assumed the responsibility for the production of regularly scheduled programs.

The workshops are in charge of the Director of Radio Production who is responsible for the quality of the "live" broadcasts.

WNAS is considered a teaching tool in the New Albany city schools and the department of audio-visual instruction has the responsibility for its successful operation from the technical and educational standpoints.

WNAS has a staff of four play-by-play sports announcers who broadcast all of the football and basketball games at home and the majority of those away.

These announcers followed their team to the state tourney finals, and, along with 35 commercial stations, broadcast the games played before 15,000 people. The announcers succeeded in getting many prominent people to speak, including Wayne Coy, Chairman of the Federal Communications Commission.

Every elementary classroom has its own radio and the junior and senior high have either classroom radios or intercommunication speakers.

The administrative and supervisory staffs of the schools feel that the student participation programs are very successful since they are planned to enable the students in the classroom to compete with their friends on the air.

Spelldowns and discussion programs are regularly scheduled by grade level and subject fields. These cover the units studied during the past month.

A great number of the broadcasts are unrehearsed, using students as far down as grade one.

The station makes no attempt to compete on a professional level with the 10 commercial stations in its coverage area, but its programs have been well received.

The 10-watt station has been heard as far away as 30 miles, has regular listeners 12 miles away, and covers fairly adequately a population area of one half million people. In buildings with metal construction, a very simple antenna is proving very advisable.

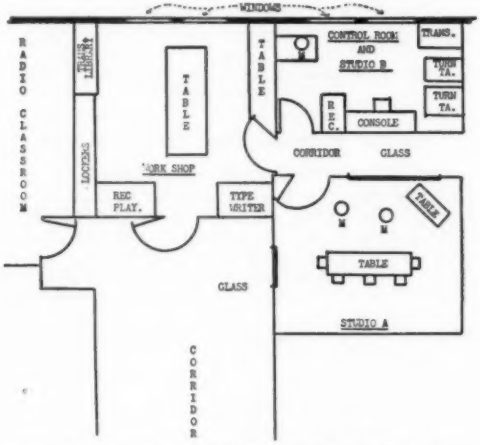

Figure 14. Layout of WNAS Radio Studio at New Albany, Indiana

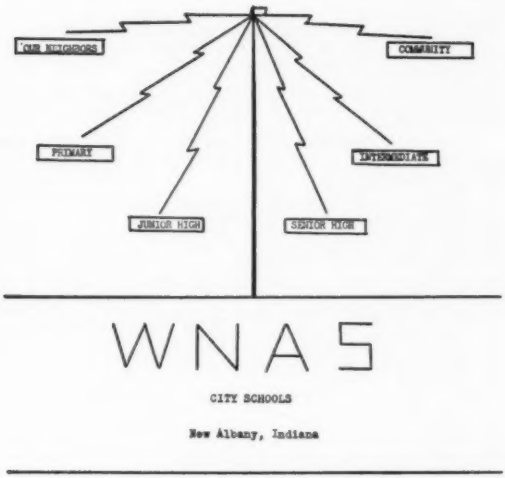

Figure 15. Publicity for School Radio Station WNAS, at New Albany, Indiana

WNAS EQUIPMENT AND COSTS

1 10 W. FM transmitted with set of spare tubes	$1,700.00
1 transmitter antenna and 60 feet of co-axial cable (40 feet above roof of a 2½ story building)	45.00
2 turntables with fine quality pickups and equalizers	800.00
1 studio console	575.00
4 good quality broadcast mikes and stands (table and floor)	330.00
1 cueing amplifier and switches	50.00
	$3,500.00

Note: In order to cut costs the $330 for mikes could be saved by using P.A. equipment. Good quality dual speed transcription players could be substituted for the $800 turntables with a resulting saving of $500. Of course all of these substitutions would cause a noticeable loss in broadcast quality.

It costs approximately 2½ cents per hour for electricity to operate the station.

The station, after one year's operation, has found it advisable to purchase a two-unit tape recorder—play-back casting—$750.00. This enables the station to carry certain transcribed educational programs on tape at a cost of 30 cents per 15-minute program, rather than on disc at $4.95.

WNAS—FM DAILY BROADCAST SCHEDULE
New Albany City Schools
New Albany, Indiana

School Year 1949-50 — 88.1 Megacycles

Note: In addition to the schedule below, WNAS will carry all Senior High Athletic Contests at home and many away from home, as well as special events during the year. (Teachers will be notified of these programs.)

DAY	BROADCAST DATES	LISTENING LEVEL
MONDAY	January 23, February 6, 20, March 6, 20, April 3, 17, May 1, 15	
	1:15 Organ Melodies	Adults
	1:30 Songs of France	Adults
	1:45 Purdue School of the Air (Lady Storyteller)	Grades 1-4
	*2:00 Indiana School of the Sky (History)	Grades 7-10 and adults
	2:15 Spell Down	Grades 4-6 and adults
	2:30 Spell Down	Grades 4-6 and adults
	2:45 Guest Star (Entertainment)	Adult audience
TUESDAY	January 24, February 7, 21, March 7, 21, April 4, 18, May 2, 16	
	1:15 Folk Songs	Adults
	1:30 Workshop Production	Adults
	1:45 Purdue School of the Air (Kiddies Listening Time)	Grades 1-3
	2:00 Indiana School of the Sky (News)	Grades 7-12 and adults
	2:15 Schools Are Interesting (Classroom Projects)	Grades 1-12 and adults
	2:30 Guest Artist (Semi-Classical Music)	Grades 1-12 and adults
	2:45 Teen Agers Speak	Grades 7-12 and adults
WEDNESDAY	January 25, February 8, 22, March 8, 22, April 19, May 3, 17	
	1:15 Religious Hymns	Adults
	1:30 Lest We Forget (These Great Americans)	Grades 7-12 and adults
	1:45 Purdue School of the Air (Alphabet of Science)	Grades 4-6 and adults
	*2:00 Indiana School of the Sky (Science)	Grades 8-12 and adults
	2:15 Magic Carpet (Primary Stories)	Grades 1 and 2
	*2:30 Excursions in Science	Grades 6-12 and adults
	2:45 Tellers of Curious Tales	Adult audience
THURSDAY	January 26, February 9, 23, March 9, 23, April 20, May 4, 18	
	1:15 Music Box (Music Appreciation)	Grades 2-6 and adults
	1:30 Opportunity Unlimited (S.H.S. Clubs)	Adults
	1:45 Purdue School of the Air (History Highlights)	Grades 5-8 and adults
	*2:00 Indiana School of the Sky (Books)	Grades 4-8 and adults
	2:15 N.A.H.S. Sports Roundup	Adult audience
	*2:30 Public Health Series	Grades 6-12 and adults
	2:45 Teen Time	Teen agers at home
FRIDAY	January 27, February 10, 24, March 10, 24, April 21, May 5, 19	
	1:15 Semi-Classical Music	Adults
	1:30 Elementary News	Grades 1-6 and adults
	1:45 Purdue School of the Air (Your Indiana)	Grades 5-9 and adults
	*2:00 Indiana School of the Sky (Guidance)	Grades 9-12 and adults
	2:15 HI News (S.H.S.)	Adult audience
	*2:30 Adventures in Research	Grades 6-12 and adults
	2:45 N.A.H.S. Concert Band	Grades 3-12 and adults

* Programs starred are transcribed and the 15-minute transcriptions are available to New Albany teachers for three-day periods. Catalogs are available and may be ordered from the film library in the City Schools Administration Building. They play at 33 1/3 R.P.M. Please order several days in advance.

Selected Materials from Louisville (Kentucky) Public Library FM Radio Station

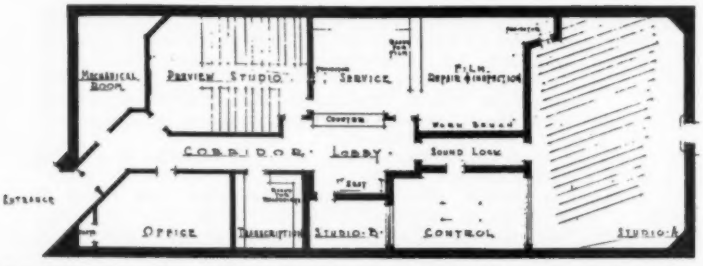

Figure 16. Floor Plan of Louisville (Kentucky) Public Library FM Radio Station

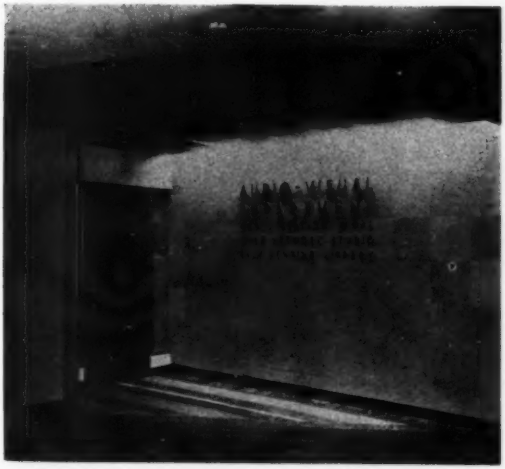

Figure 17. Entrance to the Audio-Visual Department

Figure 18. Service Area

Figure 19. Sound-Proofing Hood for a Motion Picture Projector

Figure 20. Preview Studio

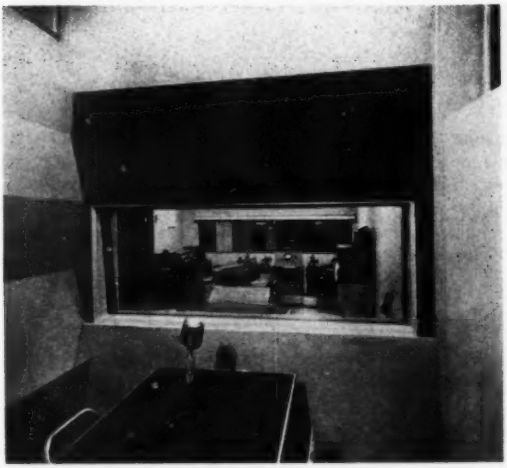

Figure 21. Small Studio (Shown as Studio B in Floor Plans)

Figure 22. Large Studio (Shown as Studio A in Floor Plans)

TELEVISION IN INDIANA

Report by

FRED M. MULLEN

At present the state of Indiana is served by 13 television stations in six areas as outlined in Figure 23. Stations transmit regular programs daily, and program time runs from two hours a day in the Bloomington area up to more than 12 hours a day on some of the stations connected directly to the network. Of the 13 stations serving the area, four are located in Chicago, three in Cincinnati, two each in Dayton and Louisville, and one each in Bloomington, Indiana, and

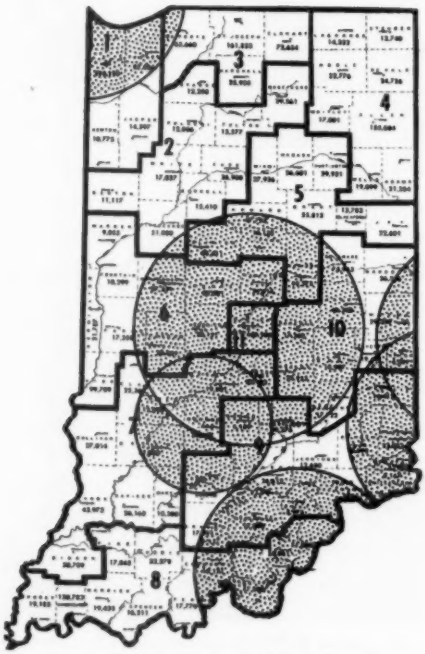

Figure 23. Six Areas in Indiana Served by 13 Television Stations

Indianapolis. The proposed location of television stations that would serve Indiana is given in Figure 24, and the geographical coverage of these stations is shown in Figure 25.

Within these six areas, television set ownership is growing at an almost unbelievable rate. Table 2 shows figures on total set ownership in each area for the first four months of 1950.

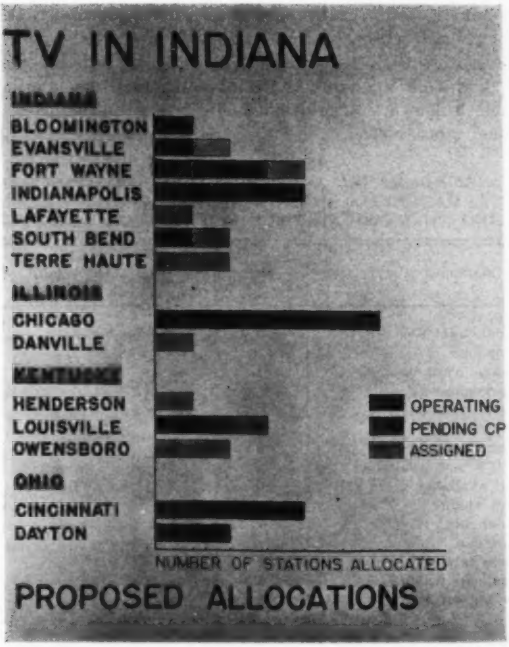

Figure 24. Proposed Location of Television Stations Serving Indiana

TABLE 2. TELEVISION SET OWNERSHIP JANUARY TO MAY, 1950, IN SIX AREAS IN AND ADJACENT TO THE STATE OF INDIANA

Date	Bloomington	Chicago	Cincinnati	Dayton	Indianapolis	Louisville
Jan. 2	2,000	266,460	50,000	23,800	14,000	16,604
Mar. 6	4,000	386,018	80,700	35,800	23,000	23,086
May 8	5,750	457,565	106,900	48,100	41,200	28,322

These figures were obtained from the weekly Telestatus reports published by *Broadcasting and Telecasting Magazine.*

In spite of their unquestionable value, no educator in the Indiana area has made inquiries about the availability of transcribed programs. None are available at present, but three stations are interested in making them available. Four stations might be interested in making film transcriptions available. Six are not interested. Nine stations,

however, would consider re-broadcasting such programs during school hours; two are uncertain, and two are not interested.

Teachers who wish to present television as subject matter in a study unit will find adequate materials and facilities available in all areas. Table 3 shows the number of stations with facilities, materials, and personnel available.

TABLE 3. RESPONSES OF 13 STATIONS POLLED, CONCERNING FACILITIES, MATERIALS, AND PERSONNEL AVAILABLE FOR USE IN TEACHING TELEVISION AS SUBJECT MATTER IN A STUDY UNIT

Report from stations	Yes	No	Uncertain	Sometimes
Schools in area use TV	7	3	3	
Film transcriptions of programs are available		13		
Schools have requested program transcriptions		13		
Would like to make transcriptions available	3	6	4	
Films about TV are available	8	5		
Speakers are available	10	2	1	
Would conduct studio tours for schools	7	1		5
School groups can watch rehearsals	6	7		
School groups can watch live shows put on air	6	5		2

Eight stations have films about TV available for showing to school and adult groups. Ten stations have speakers available.

Studio tours for education groups can be arranged at all but one station. Seven can arrange tours regularly; five others sometimes conduct tours.

Students can watch both rehearsals and programs as they are put on the air at six stations. Two others can sometimes arrange for groups to view programs as they are put on the air.

All stations are interested in working with school and adult education groups in one way or another. Table 4 shows what the stations will consider doing for groups interested in using TV.

Figure 26 shows the kinds of aid given to schools in program techniques by TV stations serving Indiana.

TABLE 4. RESPONSES CONCERNING WHAT THE 13 STATIONS POLLED WILL CONSIDER DOING FOR SCHOOL AND ADULT EDUCATION GROUPS INTERESTED IN USING TV

Consideration	Yes	No	Uncertain	No response
Run educational films	11	2		
Run films requested by school groups	11		2	
Rebroadcast programs for in-school use	9	2	2	
Publicize school news on TV news-tape programs	3	6	4	
Publicize school activities on news-tape shows	3	6	4	
Transmit instructions for administering standardized tests	2	6	5	
Use school-produced motion pictures	11	1	1	
Use school-produced documentary still picture stories	8	4	1	
Use school-produced still picture news stories	7	6		
Use "master teacher" at the college level	6	2	3	2
Use "master teacher" at the high school level	6	2	3	2
Use "master teacher" at junior high level	3	5	3	2
Use "master teacher" at elementary level	3	5	3	2
Use telecasting other live shows from education groups	7	1	5	
Do more educational telecasting if groups aid in planning and preparation	6	1	4	2
Aid education groups in preparing TV shows	8	1	4	

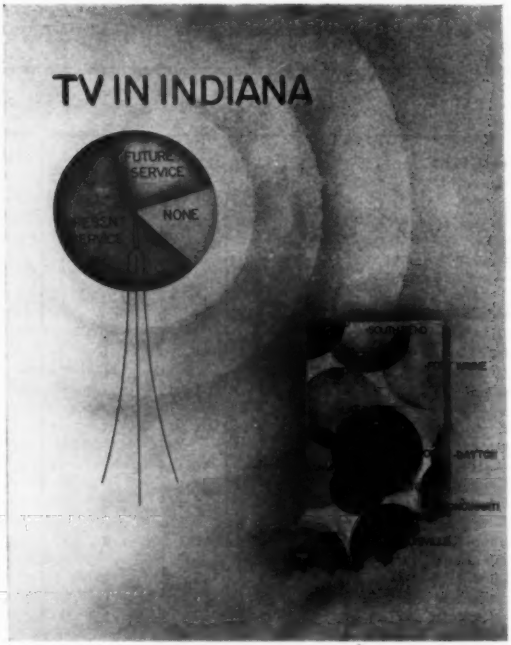

Figure 25. Geographical Coverage of the Proposed Television Stations Serving Indiana

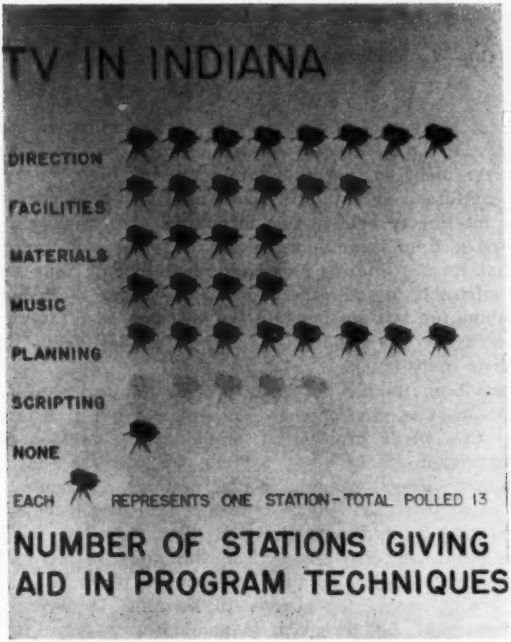

Figure 26. Kinds of Aid Given by the 13 Television Stations Serving Indiana

SUMMARY OR PRESENTATION

PAUL W. SEAGERS, Conference Chairman—Presiding

This last session of the conference is a summation meeting for the five groups who have been working hard all day yesterday and up until late last night so that they could present their final reports to the whole conference group. In most workshop-type conferences, an inspiration meeting is held at the beginning, then the groups are set to work, and a final summation session ends the conference. Due to the fact that we are limiting this conference to only four sessions, we thought it advisable to make the first three sessions, workshop sessions, and to combine the last session into the welcome, inspiration, and summation session. So the welcome is really at the tail end of the conference, which is quite unusual.

We have been talking at this conference in terms of educational environment—that is, environment for boys and girls. I think that if we look at this whole problem of providing the best in educational environment within its broadest aspects, we will see that it can be divided up into several groups, several sections, or several divisions. We might label these the physical division, the psychological division, and the learning arrangement division. But, taken in its totality, I believe it is safe to say that any environment which requires a maximum of bodily energy to adjust to that environment, thereby leaving a depletion of bodily energy for purposeful learning, is very poor educational environment. Let us put it in another way—other things being equal, that environment which limits the expenditure of body energy for adjustment to that environment and thereby provides for a maximum amount of body energy for purposeful learning is the best type of educational environment.

Harmon uses this principle in recommending school lighting. I believe it should be taken into consideration in planning all phases of educational environment. Now, to illustrate, there are workmen at this time working outside of this room making considerable noise; thus, you have to exert extra energy or to strain considerably in order to hear me talk. Even the noise put out by the ventilation system or the air-conditioning system is a cause of strain in learning or, in this particular case, in listening to the speaker.

Likewise, if we have charts up here that you are to read or if we pass out materials which you should read, and we have provided insufficient illumination so that you have to make an extra effort or strain to see that material, then the environment is poor. Or, if you are sitting in a chair that is much too large or much too small, or that is tipped forward, or that in any other way does not fit you properly, you have to put out excess body energy just to maintain your position or to adjust to that chair, or to your environment. That is using your energy in an uneconomical manner. That energy could be much better used for purposeful learning. Some psychologists

would say that adjustment to environment is learning. Yes, I think probably that is true—up to a certain point. But to require people continually to spend large amounts of energy in an educational environment just for adjustment certainly cannot be condoned on any reasonable grounds.

There is another side to this problem, that is, the psychological impact upon the individual. We are just starting to scratch the surface on the physical impact, and I do not believe we have even made a beginning on the psychological impact. Many times it is difficult to separate the two. They seem to run together. The rasping voice of the teacher or her poor grooming can have a very bad effect upon the pupils, especially if there is a slight personality conflict present. The lack of the proper social adjustment to the group as a whole; the feeling of not belonging, even to small cliques; the sense of not fitting into the situation, whether it is a socio-economic difference, a difference in dress, a difference in speech, or a difference of color of the skin—all bring about psychological problems. I fully believe that it could be proved that those problems are even greater in intensity when the environment is dark, dingy, and uninviting.

Recognition of the psychological effect of color is fairly new so far as its application to schools is concerned. I think we ought to make a very extensive study on the effect of various colors in various classrooms and in various types of environment. It may be that we will find out that color not only affects us directly psychologically, but also that it may have a profound effect upon the interpretation of other psychological factors in our environment. In other words, if I were a pupil, I believe I could dislike some of the other pupils and the teachers a little bit less in an environment that is well-balanced, buoyant, and pleasant rather than in a dim, dark, dingy, monastic type of environment. I believe I could forget a little bit more easily some of my childish problems at home if I were to enter a classroom which would bring out the feeling of buoyance, good will, and general well-being.

There may be a lot more to the psychological factors than we realize. It is time that we got busy and found out more about them. It was said that, when they painted the Black Friar's Bridge in London from a very sombre-looking black to a light green, the suicides from that bridge dropped in number. Padolsky has interestingly described many of the effects of color in his book, *The Doctor Prescribes Color.*

In the past, little attention has been given to learning arrangement and selection. All desks were of about the same type and were lined up in rows. The room was completely regimented. It fitted the fixed-seat philosophy. However, if all environment educates, then the environment in a classroom should not be a fixed environment, but should be one that can be changed to fit the needs of the pupils at various times.

Sometimes reading, art, music, and science will hold the center of attention; therfore these areas should be carefully laid out in a portable type of furniture and equipment. At other times crafts, arts, and shop may hold the foreground; and thus the room is converted quickly and easily into educational areas which are conducive to getting

the most out of those interests. The actual selection of the furniture, as well as its arrangement in a manner whereby the children can get an optimum of pleasurable experience, is very important. Many of you have seen the model primary classroom which has been on display during the conference. This gives some hint as to the possibilities of the proper selection and arrangement of school furniture. If you could just contrast that with a model of the old classrooms, you would have little difficulty in selecting the room that you want your children to occupy.

So you see, there are three definite aspects of a good learning environment: the physical impact of the environment, the psychological impact of the environment, and the learning arrangement of the environment. These act and interact upon each other to produce total environment for the child. It behooves us to consider the totality of this very complex, composite environment.

It gives me great pleasure to present to you the Director of the Summer Session, a man who has had many years of public school experience as a classroom teacher, as an administrator, and as a member of the State School Board. He is one of the first members of the staff of Indiana University whom I got to know. He has a definite interest in everything that happens in public schools and has a keen understanding of the problems of each and every one of you. He is a source of wisdom which I have had the pleasure of tapping upon many occasions. Please allow me to introduce to you Mr. H. B. Allman, Director of the Summer Session.

H. B. ALLMAN: In regard to you, Paul, I would like to say that the world is always wondering what you are going to do next. Friends, in saving some of us for this last spot, Dr. Seagers has revealed to you, actually demonstrated to you, how ultra-progressive he is. This arrangement is a jet propulsion arrangement. You apply the power at the rear, after the conference is over. The tail these days is more important than the head—in making speed and in getting to the places you need to go and drop the bombs that are so important.

My part on this program is very delightful personally, and very simple as far as you are concerned. I only wish to say that your University always stands by ready to assist you in applying scientific information in the solution of your problems, to provide encouragement, and, we hope, inspiration that will help you in carrying forward your programs, the very progressive programs you have in providing modern school facilities. Now and then, perhaps, we can provide a little help. We claim no magic. We have no golden touch. We have no Aladdin's lamp. Nevertheless, I think we have a more important source of power than the magic power of an Aladdin's lamp. When Magi Wright rubs the ears of his fact-finding crews and sends them on the flying carpet throughout the state, perchance into your own dooryard, he uses this power. If you invite them, they will quickly gather the facts and focus the light of truth on whatever problems which you may have.

I can say without risk of contradiction that, when Magi Wright concentrates his crew of chieftains on a fact-finding cruise, no touch of legendary magic can do better than with Sheiks Seagers, Stapley,

Church, Fox, Holmstedt, Foster, and their many Bedouins descending upon either a desert or an oasis. There is no significant fact small enough to hide unnoticed in the sands of uncertainty. No survey staff can do better. I have observed many that I know have done worse. This assertion I can make without the bluster of boastfulness or without the blush of modesty, for I have never been able to make the team; that is, the survey team. These bold chieftains have no fear, they withhold no truth. With the certain skill of the medico they decide whether the surgeons' knife is needed, what vaccinations or immunizations are demanded, when shots will be helpful, and which vitamins to prescribe.

I speak with all sincerity I think we have a fact-finding, useful survey service that will help you get the truth that you need to bolster whatever you want to do in your community. We are happy to confer with you on your perplexing problems, whatever they may be. I know, from 24 years of experience as a superintendent of schools, that there are plenty of problems and also that these problems are very perplexing. Nevertheless, I always enjoyed public school work. It was a fitting prelude to my work here in the University. Indiana University is always complimented, and let me say that with all sincerity, to have you people come to the University, whether it is for conferences or whether it is for help that we can give to you. This summer we have some 53 conferences, workshops, and other groups coming to the campus. These groups are not immediately related to the curriculum plan for this summer. There are something like 700 courses offered by 500 instructors employed on our staff.

We have these conferences in addition to the routine service which the University is furnishing. We are always happy when you decide to come to the campus. Now I could comment on the importance of planning school buildings, but I could not add anything which you have not been able to get already in this conference. I do know, however, that our school building services in this state, especially in the State Department, are working to your very decided advantage. It is one of the satisfactions to me as a citizen of the state, that my state would call upon experience and wisdom and integrity to launch this school building service program in the State Department of Public Instruction. I know that you all rejoice with me, that Dr. Henry Lester Smith, Dean Emeritus of the School of Education, has been called to this important responsibility and given encouragement to do the best that he knows, which is the best that is known. I know that you are carrying your problems to him, and that he is happy to help you. I shall close by saying, welcome to Indiana University even though this is the tail end of the convention. You must know and you shall know that you are always welcome here.

PAUL SEAGERS: It is now my pleasure to introduce to you a man who needs no introduction. He was the Dean of the School of Education of Indiana University for a good many years. Back in the early twenties he recommended that the State Department of Public Instruction have a division on school building planning. It is so fitting that the man who had that first vision become the man who had the great

opportunity to set it up and make it function. He has been a constant source of inspiration and help to me since I have been in this state. He was the "Daddy" of educational planning of school buildings in the midwest, and no doubt will never cease to continue his work in school building planning until his Maker calls him on high.

I take great pleasure in presenting Dean Emeritus Henry Lester Smith, Director of the Division of School Building Planning, Indiana State Department of Public Instruction.

HENRY LESTER SMITH: I want to thank you for the opportunity of coming back to the University. I sincerely appreciate the work that Indiana University and other institutions in the state are doing in setting up school building conferences and giving help out in the field. I want also to thank all of you for the fine cooperation you have given the State Department of Public Instruction in all phases of its work, and especially in this line of school building planning. Superintendent of Public Instruction Deane Walker was not able to be here today. I have the pleasure of bringing his greetings to you. You know that he has been vitally interested in the proper planning of good school buildings for the boys and girls of the State of Indiana.

It is with a great sense of appreciation that I can occasionally come back to my old haunts, in a partially official capacity, and I want to congratulate the institution and the department with which I was formerly connected. The School of Education continues to put out a tremendous amount of energy, looking to the future and holding conferences of this type. More than that, I am very happy to confess that it is a great pleasure to me to have in our midst this young man, our chairman, who is a specialist in the particular line of work in which I am engaged. He has ever been willing to cooperate wholeheartedly with the State Department of Public Instruction, and to render his utmost in services out in the field.

In closing, I wish to say that your State Department of Public Instruction is ever ready to help each and every one of you with your problems. Our staff is small, so that we cannot get around the state as rapidly as we wish. We do depend upon our state institutions to help render some of the services which normally would be considered a part of the work of my Division in the State Department of Public Instruction. It is great to be back! We have had an excellent conference, and I know that we will all go home ready to apply some of the new ideas that we have gained here.

PAUL SEAGERS: The next man I am going to introduce can take off on his own power. He does not really need anyone to get him started. He has the unique ability of getting us up in the air and at the same time keeping our eyes on the ground. He stays on the beam, and yet he is not afraid to take a turn at aerial acrobatics, of course, with the application of good judgment. It has been my good fortune to be here about three years, with five months out for Europe, and all of this time to be positively inspired by our good dean. I shall always appreciate the interest he has taken in my work. I have never seen a man, and I am sure that I do not know a dean anywhere in

the United States, who takes as much interest in the staff as our dean does. He frequently claims that he does not know anything about school building planning. I must confess that, for a man who claims to know so little, I have never seen one who knows so much. So let us take off—Dean Wright, Dean of the School of Education.

WENDELL W. WRIGHT: About the greatest compliment I have ever had in my life was to find, after I had become Dean of the School of Education, that I had been the one choice of Dean Smith for his successor. That has meant much in trying to carry out the things that he taught me for so many years and, even though I have not lived up to his teachings in their entirety, they have always been a tremendous source of guidance and inspiration to me.

As we try to think through our various problems, we sometimes feel discouraged. If you could have the experiences I have had during the last year, I am sure that you would feel you had made considerable strides in school building planning. During this last year we have been attempting to make a cooperative study of the four state institutions of Indiana. A part of our study has included a school building survey. I was astounded when I began to realize how far ahead the thinking is on elementary school levels as compared with that on the college level. You can take a lot of pride in the planning that you have been doing in the last few years. At the college level we are really just beginning to think through the problems on an educational environment basis.

If Paul Seagers, in dealing with you, does not get under your skin about school buildings, then he has lost the one thing that we brought him here for. I mean that in all sincerity. He has had the opportunity to leave the University at a salary several thousand dollars higher than what we can pay him. All we have to offer him is the opportunity to work like the devil and a great deal of freedom to test out some of his cockeyed ideas. His real job is to be the one to irritate you into thinking a little bit better and a little bit further in relation to your own schoolhouse planning. That, according to my mind, and I think Dean Smith would agree, ought to be the function of a specialist in a university. He is not to do the work of the architect nor the work of the superintendent, but to be the guide that both irritates and stimulates you into thinking about the broader relationships of school building planning.

During the last few years we have gone from the meat-packing classroom to the space- or area-planned classroom. It is interesting to note that the other day a superintendent almost, not quite, apologized for having only a thousand square feet in an elementary classroom. Well, I think he has made considerable improvement in the last few years. We have now gone from the sit-still classroom to the classroom which provides for the natural environment and growth of children, both in space and in furniture. We are thinking now, not of the seats fixed to the floor where children have to sit still all day, but of the great variety of types of movable furniture. We have gone from straight rows of furniture to work, interest, and play centers. We have gone from semi-darkness to the balanced lighting situation. We

have gone from the cracker box to the functionally-planned schoolroom. We could add much to this list, but perhaps the most significant point is that today we have the cooperative planning of teachers, administrators, school boards, parents, architects, and other specialists in arriving at the right kind of space and layout for the education of our children. I think this latter point is a significant illustration of how democracy can work at the grass-roots of our society when we are willing to work for a common purpose.

We know so well, so very well, that environment educates. Sometimes I think we should have that on a sign in all of our offices, so that every time we look up it is called to our attention that all environment educates. Where does the school fit into that total environmental picture? Children spend a lot of time in the school and its environment. That environment is very important. Social and technological developments, more thinking of education by an increasingly intelligent parent group, the broader education of the professional group itself, the deeper understanding of how children develop and what environment does to them, all form a pattern from which the educator and the architect must create a school building with provisions for abundant living.

Let us be aware, keenly aware, of the 750,000 children in this state under 10 years of age, and the nearly 10,000,000 in our country who are under 10 years of age. They are the greatest social, economic, and spiritual wealth we have. Let us remember that they are hoping that we, those who love them most, will provide for them as well balanced a living and growing environment as is possible with the vast technical knowledge that we have today. This has been the purpose of this conference. I know that the reports that will follow will attest to both the intensive and extensive thinking that has been taking place during the previous sessions.

Yesterday afternoon there roared over this building a fleet of bombers on a practice run. Perhaps the roar of that group meant a bit more to me than to some of you. In the lead plane sat a member of our staff, Captain Robert Richey, as the lead navigator. From Bob Richey, both as a soldier and as an educator, I would expect pin-point navigation. Likewise, in your respective fields, I feel that you cannot afford to fail your mission. That mission in my judgment is to pinpoint or to plan more carefully, on a cooperative basis, a better environment for our children. In this very troubled world of ours they will need the best that you can plan. My message is to locate and to define your target area well and then to bring all of your community and technological resources into covering the area. Few of us have the opportunity to have more than one chance at the target. A miss now could easily leave a structure as a monument to our lack of vision. I am sure that none of you will leave that type of monument.

PAUL SEAGERS: Thanks, Dean, for that very inspiring talk. You have now set the stage for the reports of those people who have so graciously given up their time to come here and help out with this conference.

I am very proud of the fact that one of my colleagues from New York State, Mr. Raymond Sant, came over here to make his contribution to this conference as a token of our friendship over a great number of years. Our good friend Larry Perkins, from Chicago, showed many colored pictures of some of his thinking in the past. We have architects from Kentucky, Ohio, and Indiana. You superintendents, principals, teachers, and members of the P.T.A. have all made a real contribution to this conference. Our good friends from the state department, Dean Emeritus Henry Lester Smith and Mr. T. A. Kleckner, have helped in a very material way. This has been a concrete example of cooperative planning, cooperative planning on both a statewide and an interstate level.

Jack Elzay, my former assistant, is here and would be glad to talk with any of you about the cooperative planning he has just gone through. In a situation in which bond issues had been voted down by a vote of 5 to 1, Jack used definite techniques which we have developed and in less than one year got an affirmative vote of better than 3 to 1. That shows what can be done through the proper application of the right techniques to cooperative planning.

BIBLIOGRAPHY

Aden, Carlin, "Our High School Shops Look Ahead," *American School Board Journal* 111:43-46, November, 1945, il, plans.
Building, equipment, and layout, Clover Park, Washington.

Administrative Building Council of Indiana, *Building Rules and Regulations*, Administrative Building Council of Indiana, vol. 1, 1944. (Distributed by Purdue University.)

"Advantages of One-Story Buildings in Securing Flexibility," *School Executive* 65:70-72, May, 1946.

Anderson, H. V., "Lights on Nightly in Wilmington Schools," *Clearing House* 24:331-34, February, 1950.

Anderson, H. V., and Gores, H. B., "School as a Recreative Center," *School Executive* 67:45-46, June, 1948.

Baker, C. T., "Summer Care of School Heating Plants," *American School Board Journal* 120:39-40, May, 1950.

"Basis of Selecting Architects," *American School Board Journal* 112:74, May, 1946.
Application form for architects.

Bergh, W. A., "Seattle's Transportable Schools," *Childhood Education* 26:176-77, December, 1949; *Education Digest* 15:46-47, April, 1950.

Berkhof, W. L., "Evaluate Before Building," *American School Board Journal* 110:17-18, January, 1945.
Seven valuable principles in planning a school building program.

Bishop, A. T., and Christiansen, P. K., "Community Uses School Buildings in Oak Ridge, Tennessee," *School Management* 19:4-7, April, 1950.

Blackstone, E. S., "Devices to Be Used in the Teaching of Salesmanship," *Balance Sheet* 31:300-304, March, 1950.

Bolton, Frederick E., "Importance of the Village Center in School Consolidation," *American School Board Journal* 112:33-34, January, 1946.
Valuable school services for adults are offered by the village school.

Brocker, Robert J., "Planning the School Radio and Public Address System," *American School Board Journal* 97:39-40, September, 1938.

Brown, Charles B., "Postwar City Plan Must Include Modern School Facilities," *American School Board Journal* 112:55, February, 1946.
Schools for apartment centers.

Bruce, William G., and Bruce, William C., "Postwar Schoolhousing," *American School Board Journal* 111:52-53, September, 1945.
Trends in planning for postwar buildings.

"Buildings," *Nation's Schools* 37:82-84, March, 1946.

"Buildings—Building Program at Indianapolis," *Nation's Schools* 37: 74-75, February, 1946.
Outline.

Bursch, Charles, and Gibson, Charles D., "Give Parents a Room at School," *Nation's Schools* 35:37-38, February, 1945, plans.

Bursch, Charles W., and Reid, J. L., *You Want to Build a School?* Reinhold Publishing Company, New York, 1947, 128 pp.

Bush, E. Joe, "The Thermopolis Grade and Junior High School," *American School Board Journal* 110:48-49, January, 1945, il, plans.
Floor plans of an elementary building (P.W.A. financed).

Butzbach, A. S., "School Board Concern with School Equipment," *American School Board Journal* 117:27-28, November, 1948.

Cate, J. T., "There Are Different Methods of Financing New School Buildings," *School Management* 15:401, March, 1946.
Various plans for postwar school plant financing. Reasons for financing. Reasons for financing the future building program now.

Caudill, W. W., *Space for Teaching*, Bulletin of the Texas Agricultural and Mechanical Arts College, College Station, 1941, 124 pp., $1.
One of the best and most forward-looking publications on the school plant. "Must" reading for school people and architects.

Caufield, L. R., "Explaining Building Needs to the Public Graphically," *American School Board Journal* 112:37-38, August, 1946.
Eleven charts for use in presenting needs.

Cherry, R. W., "Small Schools," *School Executive* 68:40-41, January, 1949, il, plans.

Childs, Frank A., "Gown Meets Town," *Nation's Schools* 36:36-37, September, 1945.
Postwar building program of Elgin Academy, Elgin, Ill.

Churchill, H. S., "Building for School and Community Needs," *American School and University, 1948*, pp. 95-98, American School Publishing Corp., New York, 1948.

Clark, B. N., "Economy in School Construction," *American School Board Journal* 120:37-38, April, 1950.

Clark, L. M., "Central School Services its Community," *National Education Association Journal* 37:276-77, May, 1948; *Education Digest* 14:53-54, November, 1948.

Cocking, Walter D., "Getting the Money for School Plants," *School Executive* 69:5, February, 1950.

Cocking, Walter D., "The Postwar Schoolhouse," *American School and University, 1945*, pp. 17-22, tables, charts.
Report of building needs and estimated cost of new construction. Public school and college. National in scope.

Coe, Theodore Irving, "Schools for Postwar Construction," *American School Board Journal* 110:43, February, 1945.
Trends in planning for postwar schoolhousing.

Coleman, William H., "Planning Adequate School Facilities as an Integral Part of Large Scale Housing Projects," *American School and University, 1945*, pp. 35-39, il, diags, and plans.
Eleven rules as a guide for determining school building needs in large scale housing projects. Factors affecting school population. Effects of Lanham act.

Commission on American School Buildings, *American School Buildings*, American Association of School Administrators National Education Association, Washington, D.C., 1949, 341 pp., $4.

"Community Buildings" (Building Types Study No. 113), *Architectural Record* 99:97-109, May, 1946, il, diag.
Design, character, planning of community recreational, and nursery school.

"A Community Gymnasium," *American School Board Journal* 111:49-50, November, 1945, il, diag.
A combined gymnasium armory.

"Community School That Makes for Better Living," *American School Board Journal* 111:39-42, December, 1945, il.
A homemaking laboratory building at Highland Park, Mich.

Corbett, J. C., "The Lingle Grade School," *American School Board Journal* 110:50-53, January 1945, il, plans.
Finance and plans of an elementary building (P.W.A.).

Coy, Wayne, "Radio Tower *vs.* Ivory Tower," *National Education Association Journal* 37:494-95, November, 1948.

Credle, W. F., "The State Department of Education and School Plant Planning," *School Executive* 64:67-68, March, 1945, il.
How divisions of schoolhouse planning, properly staffed can render invaluable aid to the local school administrator on school plant problems.

Dennison, M. C., "War Builds a Neighborhood School," *National Elementary Principal* 25:164-67, September, 1945, il.

"Directory of Accredited Retail Dealers in Audio-Visual Equipment, Materials, Supplies, and Films (1948-1949)," National Association of Visual Education Dealers, Inc., *The Association*, 1949.

"Designed for a Farming Community," *Nation's Schools* 36:35-36, July, 1945, il.
The neighborhood school.

Dunham, F., "F.M. Broadcasting Offers New Opportunity for Schools," *National Education Association Journal* 37:372, September, 1948.

Dunham, Franklin, and Reynolds, Rollo G., *Radio Utilization in the Classroom*, McGraw-Hill Book Co., Inc., New York, 1945.

Durham, W. W., "School Survey of a Western College City," *American School Board Journal* 112:41-44, April, 1946, il, diags, and maps.
Techniques for determining school building needs.

Eddy, William C., *Television: The Eyes of Tomorrow*, Prentice-Hall, Inc., New York, 1945.

"Educational Planning—Conference on School Building," *School Executive* 65:59-61, January, 1946.
Detailed report of the New York Conference.

"Efficient Utilization of School Buildings," *School Executive* 68:61-74, September, 1948.

Elekma, Charles E., "A School System Studies Its Community," *School Executive* 65:55-56, January, 1946.
Educational needs of a community.

Elliott, Eugene, *A Guide for Planning School Buildings*, State Department of Public Instruction, Lansing, Mich., 1945, 147 pp.
Planned to inform and stimulate rather than control Michigan school plant planning.

Engelhardt, N. L., "Children Need Space in Which to Grow," *School Executive* 67:24-25, July, 1948.

Engelhardt, N. L., "One of the New York City Postwar Buildings," *American School Board Journal* 110:55-56, January, 1945, il, plans.
A 40-room New York City elementary building.

Engelhardt, N. L., "Planning Distinctive American Schools," *School Executive* 65:77-78, April, 1946.
Express community needs in planning schools.

Engelhardt, N. L., "Planning the Postwar School Building Program," *American School and University, 1945*, pp. 12-16, il, diags.
Steps to serve as guides to boards of education in the advancement of postwar planning.

Engelhardt, N. L., and others, *Planning Secondary School Buildings*, Reinhold Publishing Corp., New York, 1949, 320 pp., $10.

Engelhardt, N. L., Jr., and Leggett, S., "Rating Card for Elementary Schools," *School Executive* 68:47, September, 1948.

"Equipment for the Resource Age: Where to Turn for Projectors, Recorders, Screens, and Playbacks," *Scholastic Magazine* 53:28T, October 13, 1948.

Essex, Don L., "Classroom Ventilation in the New or Remodeled School Building," *High School Journal* 33:77-79, March, 1950.

Essex, Don L., "The Architect's Preliminary Studies," *American School Board Journal* 110:31-32, March, 1945, il.
An outline of preliminary site study and cost estimates.

Essex, Don L., "Planning the Central Rural School as a Community Center," *American School Board Journal* 110:47-48, May, 1945.
Four factors in community use of school building.

Essex, Don L., "Planning the School Building for Community Use," *Review of Educational Research* 18:28-31, February, 1948.

Essex, Don L., "Problems in Design and Operation Caused by Multiple Use of the School Plant," *American School and University, 1945*, pp. 68-71, American School Publishing Corp., New York, 1945, il, diag.
Problems in design and operation in relation to community use of school facilities.

"Factors Which Influence Buildings to Be Built," *School Executive* 65:62-64, January, 1946.

Fair, E. W., "Utility Bills Can Be Cut if These 35 Rules Are Carefully Observed," *Nation's Schools* 45:70, May, 1950.

Fawcett, Novice G., "Functional Planning: Berley Designs a Modern Elementary Building," *American School Board Journal* 112:29-33, January, 1946, il, plan.
A suburban community school, Columbus, Ohio.

"Federal Aid for School Buildings," *School Executive* 65:33, January, 1946.
Need of federal aid.

Fitzwater, C. O., "Some Guides to a Wide Use of Rural Schools for Adult Education Purposes," *Adult Education Bulletin* 13:212-16, October, 1948.

Flesher, W. R., and Holy, T. C., "Steps in Community Planning for a School Building Program," *School Executive* 64:60-62, March, 1945, diag.
Plans should provide for execution of the program and continuous evaluation afterward.

"FM for Local Schools," *Science News Letter* 54:348, November 27, 1948.

Foster, E. S., "Empire State FM School of the Air," *Association Educational Radio Journal* 8:15-16, October, 1948.

Foy, Zed L., "Looking Ahead to Postwar School Building Needs," *American School Board Journal* 111:45-47, September, 1945.
Suggested procedures in school building planning.

Funk, J. B., "Planning the Modern School Plant," *National Parent Teacher* 44:14-16, May, 1950.

Garvey, James J., "Your School Insurance," *Nation's Schools* 36:58, August, 1945.
Review and inventory of factors in school insurance.

George, N. L., "Selection of Supplies and Equipment," *School Executive* 67:36-37, July, 1948.

Gillette, A. S., "The Auditorium for the Small High School," *American School Board Journal* 112:47-48, January, 1946.
Disadvantage of combination rooms; solutions offered; illumination and ventilation problems discussed.

Godfrey, Rosalie, S., and Short, Gladys, "Recommendations for Lunch Rooms," *Nation's Schools* 37:34-40, January, 1946, il,
Standards for a lunchroom.

Goldwasser, David. "Planning a Postwar School," *School Executive* 64: 48-49, May, 1945, plans.
General design of a junior high school, Brooklyn.

Graff, Orin B., "Planning School Grounds to Serve the Entire Community," *American School and University, 1945*, pp. 58-61, American School Publishing Corp., New York, 1945, il.
Administrative difficulties of school use of community facilities, social, objectives. school grounds, parks. and playgrounds.

Gray, J. E., "Are You Planning New Buildings?" *Education Digest* 11:17-20, February, 1946.
Thirty-two specific suggestions to be used in planning and carrying out a school building program.

Grieder, Calvin, "Joint School and Community Planning," *American School Board Journal* 110:41, April, 1945.
Overview of joint planning in cities over 100,000.

Grieder, Calvin, "School Plant Planning as Part of Over-all Community Planning in Cities Over 100,000 Population" *American School and University, 1945*, pp. 26-30, American School Publishing Corp., New York, 1945, il, diag, site plans.
School plant planning in relation to community planning in cities over 100,000.

Griffith, K. A., Jr., "Designed to Fit the Program of the First Six Grades," *Nation's Schools* 45:69, April, 1950.

Grover, Katherine, "Schools for Recreation for Tomorrow," *American School Board Journal* 110:43-44, January, 1945.
Community use of building principle of flexibility.

Halseth, I. R., *et al.*, "Albany Beats the Classroom Shortage," *American School Board Journal* 120:46-48, May, 1950.

Halverson, John J., "School Plant Planning as Part of Over-all Community Planning in Small Cities," *American School and University, 1945*, pp. 31-34, American School Publishing Corp., New York, 1945, il, site plans.
Location of sites, provisions for adult use. Cafeteria, auditorium, gymnasiums. Joint fiscal planning.

Hamon, Ray L., "Community School," *Education for Victory* 3:3-4, March 20, 1945.

Hamon, Ray L., "Functions of a Modern School Plant," *School Executive* 64:58-59, March, 1945, il.
Program will serve needs of all.

*Hamon, Ray L.; Herrick, John H.; and Eckles, William G., "Planning the Secondary School Plant," *Bulletin of the Proceedings of the Thirty-Second Annual Convention of the National Association of Secondary School Principals* 32:202-27, March, 1948.

Hayes, J. Byers, and Watson, Wilbur, Architects, "Community Facilities, Berea, Ohio," *Architectural Record* 97:87-90, June, 1945, il, diags.
Child center carefully combined with a neighborhood center.

Haynes, C. D., "Six-Classroom Building Serves Elementary School Pupils and Community," *Nation's Schools* 45:66-67, April, 1950.

*Hitch, R. L., "Physical Layout, Equipment, and Supplies for Business Education," *Business Education World* 29:28-29, September, 1948.

Holland, N. S., "Making Dreams Come True," *School Executive* 65:59-60, November, 1945.
Effect of a community school plant in a Texas center.

Holy, T. C, and Herrick, John H., "School and Community Join Forces in School Plant Planning," *Nation's Schools* 37:28-30, March, 1946, il.
Discussion of Cincinnati building survey.

"Homemaking Apartment for Upper Grades," *Nation's Schools* 37:35, February, 1946, il.
Redecorating and refurnishing.

Hunt, Herold C., "Interpreting the Postwar Plant Program," *Nation's Schools* 35:39-40, March, 1945.
Public interest must be gain and needs made evident.

Hutchinson, J. R., "Get Your Television Receiver Free," *Secondary Education* 14:13-14, September, 1948.

"If You Plan to Build, Know About These Bills and Act on Them," *School Management* 15:360, March, 1946.
Discussion of Bill H. R. 4499 which deals with Federal aid given to the states for general planning surveys, etc.

"Indiana Schoolmen Study Postwar School Building," *American School Board Journal* 112:44, April, 1946.
Report of Indiana University Conference on School Buildings, Grounds, and Equipment, 1946.

Indiana University, *Indiana and Midwest School Building Planning Conference: Proceedings*, Bulletin of the School of Education, vol. 24, no. 5, September, 1949, 72 pp.

Indiana University, *Indiana and Midwest School Building Planning Conference: Proceedings*, Bulletin of the School of Education, vol. 25, no. 5, September, 1949, 72 pp.

---

* Taken from bibliography of Perkins and Cocking, *Schools*, Reinhold Publishing Corp., New York, 1949.

Indiana University, *Planning School Buildings for Tomorrow's Educational Program: Proceedings*, Bulletin of the School of Education, vol. 23, no. 5, September, 1947, 61 pp.

Indiana University, *Visual Environment for Schoolrooms* (by Paul W. Seagers) *with Proceedings of the Indiana Illumination Conference*, Bulletin of the School of Education, vol. 26, no. 3, 1950, 64 pp.

Ittner, W. B., "How Shall We Plan and Maintain the High School Plant?" *National Association of Secondary School Principals Bulletin* 34:54-59, March, 1950.

Jackson, Janet, "A Village Offers City School Advantages," *American School Board Journal* 111:46-48, October, 1945.
Village school planning, Estes Park, Colo.

Jardine, Alex, "Planning a Community School," *Nation's Schools* 37:34-35, May, 1946, il.
The annexation district (Evansville) plans a community school.

Jardine, Alex, "Initial Steps in the Moline Building Program," *American School Board Journal* 120:35, March, 1950.

Jarvis, E. A., "How Shall We Plan and Maintain the School Plant?" *National Association of Secondary School Principals Bulletin* 34:59-64, March, 1950.

Jennings, S., "New Communications Equipment," *Chicago School Journal* 29:167-69, May, 1948.

Johnson, William, "With Emphasis on the Kindergarten," *Nation's Schools* 37:38-39, June, 1946.
Plans and construction details of an elementary school, Everett, Wash.

Katterle, Zeno B., "Vancouver Meets War Needs for Postwar Years," *American School Board Journal* 110:45-47, July, 1948, il, plans.
Four hundred per cent increase in enrollment complicates school planning.

Kerby, Philip, *The Victory of Television*, Harper and Bros., New York, 1939.

Ketchum, V., "Timber Framing for Schools," *School Executive* 69:37-40, December, 1949.

Kimes, William F., "Steps in a Postwar Building Campaign," *American School Board Journal* 111:37, December, 1945.
Three specific steps in school building planning.

Kinley, F. L., "Elementary School Buildings at Findlay, Ohio," *American School Board Journal* 120:47-49, April, 1950.

Knapp, M. L., "With a Community Emphasis," *National Elementary Principal* 25:20-23, April, 1946, il, plan.

Kyte, George C., "Ours Serve the Whole Community," *Nation's Schools* 35:32-35, April, 1945, il, plans.
California junior college data.

Lacey, G. H., "Designed for Living," *National Elementary Principal* 25:42-45, April, 1946.

Landis, Judson R., "War Babies," *Nation's Schools* 36:22-23, December, 1945.
Effect of birth rates on building needs.

Lewis, P., "On the Air Classroom Broadcasting for About $10," *Educational Screen* 27:329-30, September, 1948.

Lewis, P., "Television Goes to School," *Educational Screen* 27:439-41, November, 1948.

Linn, K. K., "Clever Planning for the Improvement of Plant Operation," *School Management* 19:12-15, May, 1950.

Mason, Charles C., "Public Relations and Bond Issues," *American School Board Journal* 112:37-38, April, 1946, il.
Public relations hints for boards faced with bond issues.

"Meeting of Council on Schoolhouse Construction," *School Executive* 65:41-42, December, 1945.
Program of the conference.

Melby, Ernest O., "The Neighborhood School," *Nation's Schools* 36:34-36, July, 1945.
School is more than a building.

Melby, Ernest O., "What Educators Desire," *Architectural Record* 97: 72-73, June, 1945.
New school planning for neighborhood use. An interchange of opinions and useful information between architects and school men.

Melendy, Ruth W., "Designed for Growth," *Nation's Schools* 37:34-36, March, 1946, il.
General design of a California elementary school.

Miller, Ira T., "Nursery Schools in Seattle," *American School Board Journal* 111:51-52, October, 1945, il.
Buildings and equipment for nursery schools.

"A Model Swiss Elementary School," *American School Board Journal* 112:43-46, February, 1946, il, plans.
Modern Swiss design of elementary schools.

Moeller, Winton L., "Postwar Planning for the High School Athletic Program," *American School Board Journal* 110:42-44, July, 1945.
Plant and equipment criteria are listed.

Moore and Hutchins, Architects, "Rhinebeck Central School (New York)," *Architectural Record* 97:75-77, June, 1945, il, diags.
Full community development on grounds as well as buildings. Diagrams of recreation areas, classrooms, gymnasium, and other rooms in the school building.

Murphy, William R., "Cleveland Plans Elementary Schools," *American School Board Journal* 112:54-55, January, 1946, il, plans.
Administration of a building program.

The National Association of Secondary School Principals, *The Business Education Program in the Secondary School, The Bulletin*, vol. 33, no. 165, November, 1949, pp. 35-43.

The National Business Teachers Association and the Eastern Business Teachers Association, *Physical Layout, Equipment, Supplies for Business Education*, The American Business Education Yearbook, vol. 5, Somerville Press, New Jersey, 1948, 344 pp.

National Council on Schoolhouse Construction, *The 1948 Guide for Planning School Plants*, George Peabody College for Teachers, Nashville, Tenn., 1949, 173 pp.
The long-awaited revision of the Council's statement of objectives for the school plant, in detail by spaces and functions.

"N-K-8 Plan for Portland, Oregon," *Nation's Schools* 36:37, July, 1945.
Modern nursery school, kindergarten, through eight schools, Portland, Ore.

O'Dell, Hewlett, and Luckenback, Architects, "Litchfield Consolidated School, Wayne County, Michigan," *Architectural Record* 97:78-79, June, 1945, il, diags.
Plan provided for a very long range of school training combining kindergarten, elementary school, high school, vocational, and adult education.

Parhan, Lillian C., "The School Cafeteria," *Nation's Schools* 35:56, March, 1945.
Seating and arrangement of facilities.

Patty, W. W., and Bookwalter, K. W., "Facilities for Health in Public School Buildings," *Public Health Nursing* 40:548-552, November, 1948.

Payne, C., "Elementary School Classroom," *Review of Educational Research* 18:22-27, February, 1948.

Pence, W. G., "A Genuinely Useful Community School," *American School Board Journal* 110:23-27, January, 1945, il, plans.
Glassbrick lighting for halls. Accoustical treatment. Unit costs.

Perkins, L. B., "Analysis of Schools Designed by a Chicago Firm," *School Executive* 69:68-73, March, 1950.

Perkins, L. B., "Classroom Storage Facilities," *Architectural Record* 97:114-115, June, 1945, diags.
Diagrams of storage cabinets, bookshelves, teacher's supply and coat closet, tool drawers, and various supply storage units.

Perkins, Lawrence B., and Cocking, W. D., *Schools*, Reinhold Publishing Corp., New York, 1949, 264 pp.
A good presentation of what the authors believe a school plant could be like, and an approach which may bring it about.

Petersdorf, Martha, and Moore, James H., "The Riverton Primary School," *American School Board Journal* 110:54, il, plans.
Describes design of a 10-room elementary building. Glass block lighting.

Pierra, Lester La, "Effective Planning Brings Economy," *School Executive* 64:45-46, January, 1945, il.
How functional design and planning, unusual use of ordinary materials make the U.S. Merchant Marine Academy a model of efficiency and beauty.

"Planning for New Buildings," *National Education Association Journal* 35:159, March, 1946.
Magazine sources. Suggestions for planning your building program.

"Planning the High School Plant," *High School Journal* 33:46-93, March, 1950.

"Plant Facilities for the Community School," *School Executive* 65:70-72, January, 1946.
Panel report of New York conference.

Post, E. E., "From an Architect's Notebook: Rural Elementary School," *School Executive* 68:31-33, December, 1948.

Price, Mark, "Community Studies in School Planning," *American School Board Journal* 110:39-41, January, 1945, il, diag.
Deals with traffic study. Dispersal diagrams.

Proctor, A. M., "Site Selection and Development for a Secondary School Plant," *High School Journal* 33:49-55, March, 1950.

"Progress Report on School Plant Position Planning," *School Management* 14:280-82, December, 1945, tables.
Summary of findings on school plant postwar planning from 806 school systems. Survey of building needs, proposed construction, and estimated cost.

Putnam, R. A., "Year-Round Use of the School Plant," *School Executive* 68-71, September, 1948.

Ramsey, J. W., "What Constitutes a Desirable Classroom," *American School Board Journal* 110:46-47, April, 1945.
Criteria for high school, elementary, and adult classrooms.

Reavis, W. C., "Functional Planning of School Buildings," *Elementary School Journal* 46:72-80, October, 1945.
A general discussion of school building in the past, necessity for functional planning, problems in functional planning, and fundamental changes in design necessary.

Ronan, Joseph P., "Building Program Waits Green Light," *School Executive* 65:50, May, 1945, il, diags.
Joint planning in New York.

Ross, H. T., "Can the Colleges Use Low Power FM?" *Quarterly Journal of Speech* 36:61-64, February, 1950.

Rudy, Francis T.. *Potential Uses of Radio and Public Address Systems in Various School Activities with Special Emphasis Upon English Studies*, Ohio State University, Columbus, 1940, 223 pp.

"Rural School for Rugged Site," *Nation's Schools* 36:39-40, December, 1945, il, plans.
An elementary school, Battleground, Wash.

"San Carlos Elementary School, California," *Architectural Record* 97:94-97, June, 1945, il, diags.
Fluid open planning of units for school and neighborhood.

"School Building Codes and Standards," *School Executive* 65:68-70, January, 1946.
Panel report, John E. Nichols, presiding, New York conference.

"School Building News," *American School Board Journal* 112:64, March, 1946.
Indiana University school planning conference.

"School Buildings for Rural America," *School and Society* 63:206, March 23, 1946.
Announces a survey being made to help rural communities lacking adequate facilities for educational work.

"School of Tomorrow—According to Classroom Teachers and Principals," *National Elementary Principal* 25:46-48, April, 1946.

"Schoolhouse Planning: Two Elementary Schools That Demonstrate Advantages of Square Classroom," *Nation's Schools* 42:33-38, November, 1948, il, plans.

"Schoolhouse Planning Through the Ages 3½-18," *Nation's Schools* 44:63-70, April, 1950.

"Schools," *Architectural Forum* 82:123-132, June, 1945, il, diags.
Two elementary schools in California, a memorial high school in Maine, and a building at Black Mountain College, N.C. Partially built by student and faculty labor.

Schuler, C. R., "Board Member Tells How to Plan for a School Building Program," *School Management* 15:90-91, October, 1945.
Staff and local participation in school plant planning.

Schulz, George, "Simplicity of Construction with Cinder Block," *Nation's Schools* 37:26-27, April, 1946, il.
Detroit meets material shortages.

Seagers, Paul W., "Building for Safety," *High School Journal* 33:86-89, March, 1950.

Seagers, Paul W., *Community Participation in School Building Planning* (unpublished doctoral thesis), Teacher's College, Columbia University, New York, 1950, 90 pp.

Seagers, Paul W., "The Central Radio-Sound System in Postwar Planning," *American School Board Journal* 111:49, October, 1945.

"See and Hear, Equipment Makers Cite Design Progress," *See and Hear* 5:44-45, January, 1950.

Shaw, A. B., "List of Equipment for Classrooms in a Modern Elementary School," *American School and University, 1948*, pp. 283-286, American School Publishing Corp., New York, 1948.

Smith, Henry L., "Trends That Affect Building," *Nation's Schools* 37:35-37, May, 1946.
Expansion, flexibility, specific standards, community schools.

"Spirit of the Conference and Its Conclusions," *School Executive* 65:72, January, 1946.
Conclusions, New York conference.

Stein, Clarence S., "Education and the Evolving City," *American School and University, 1945*, pp. 40-53, il, diag, and plans.
The school as a neighborhood center, relation of city and school planning. Examples from Resettlement Administration, Farm Security Administration. Five criteria for city planning.

Stoneman, M. A.; Broady, Knute O.; and Brainard, A. D., *Planning and Modernizing the School Plant*, University of Nebraska Press, Lincoln, 1949. 328 pp.

Strayer, George D., and Engelhardt, N. L., *Standards for Elementary School Buildings*, Bureau of Publications, Teachers College, Columbia University, New York, 1933, 181 pp.

Streit, W. K., "Planning Facilities for Health, Physical Education, and Recreation," *American School Board Journal* 111:50-51, September, 1945.
Results of a study on these facilities. Desirable features and mistakes.

"A Survey of School-Building Needs in Cincinnati," *American School Board Journal* 110:54, March, 1945.
Recommendations of Cincinnati school building survey, 1945.

Taylor, W. S., "Determining the Equipment Needed for a New Building," *School Executive* 67:45-46, July, 1948.

"Television and Telephone Can be Combined to Bring the Classroom to the Shut-in Child," *American Teacher* 34:14, April, 1950.

Thurston, Lee M., "Financing Tomorrow's School Plant," *Nation's Schools* 36:42-43, September, 1945.
Sharing responsibility for postwar schoolhousing.

"To School by Telephone," *Scholastic Magazine* 56:23T, April 5, 1950.

Villapiano, J. G., "School Board President's Observations on School Building Rentals," *American School Board Journal* 117:49-50, November, 1948.

Whitton, C. A., "One or Two-Story Buildings? Cost Is Not the Only Factor to Consider," *School Management* 19:13-15, April, 1950.

Wiener, Samuel G., "New Elementary School," *Nation's Schools* 37:38-40, March, 1946, il.
Construction details of a modern elementary school.

Wilkins, George T., "Home Library Rooms in Madison, Illinois," *American School Education Journal* 111:54, September, 1945.
Planning for elementary school libraries.

Wilson, C. O., "Country School Becomes a Rural Cooperating Center," *Education for Victory* 3:7-8, March 20, 1945; *School Management* 15:93, October, 1945.
An entire community works on problems of mutual interest.

Winslow, Leon L., "Art Accommodations for Poswar Schools," *American School Board Journal* 110:42-43, April, 1945, il.
Locating, lighting, and equipment.

Winters, Arthur R., "Planning the School Gymnasium," *American School Board Journal* 112:40-43, January, 1946, il.
Unit types *vs.* multi-use rooms. Criteria for construction.

Winters, Arthur R., "Preliminary Considerations for Gymnasium Planning and Construction," *American School Board Journal* 110:28, January, 1945.
Includes community uses. Discusses war influences. Deals with construction problems.

Woelfel, Norman, *How to Use Radio in the Classroom*, The National Association of Broadcasters, Washington, D.C., 1939.

Woelfel, Norman, and Tyler, I. Keith, *Radio and the School*, World Book Co., New York, 1945.
In addition to the above bibliography, attention is called to the *Bibliography on Radio*, by the U.S. Office of Education, Washington, D.C. and the bibliography of 169 books and articles in the June, 1942, issue of *Review of Educational Research*.

Wolff and Phillip, Architects, "Creston School, Portland, Oregon," *Architectural Record* 97:91-93, June, 1945, il, diags.
Specialized classrooms and developed public areas. Suggestive outlay for buildings and grounds.

Wynkoop, Frank, and Associates, "Lakeside Union Elementary Building," *Nation's Schools* 35:35-36, February, 1946, il, plans.
Construction details.

Wynkoop, Frank, "For Both Education and Recreation," *Architectural Record* 97:74-79, March, 1945, il, diags.
A modern school building on a 7-acre site. Concrete construction with steel reinforcement.

Wynkoop, Frank, "Paso Robles Elementary School, California," *Architectural Record* 97:82-86, June, 1945, il, diags.
Small school equipped with kindergarten and health office. Classrooms. Playcourt.

"Yonkers Public Library Displays, Its Audio-Visual Machines," *Library Journal* 73:1209, September 1, 1948.
Zepp, E. S., "Let's Be Sensible About School Buildings," *American School Board Journal* 120:38-39, April; 120:41, May, 1950.

Bulletins in the Field of Education, Indiana University

The Bulletin of the School of Education, Indiana University, was first published in 1924 and has appeared regularly since that time. Research studies of interest to educators, proceedings of conferences held, and bibliographies of educational materials have been the principal fields touched upon in these bulletins. A complete list of the bulletins may be obtained from the School of Education upon request. The studies included in the present volume and in the two volumes immediately preceding it in date are listed below. Unless otherwise noted, these may be obtained for 75 cents each from the Indiana University Bookstore, Bloomington, Indiana.

The Effect of English Deficiency Upon a Student's Adjustment in College. By Robert H. Shaffer. Vol. XXIV, No. 1, 1948. 35 p. 50¢.

Planning for School Surveys. By George D. Strayer, Jr. Vol. XXIV, No. 2, 1948. 36 p. 50¢.

An Analysis of Various Factors Associated with the Selection of Teaching as a Vocation. By Robert W. Richey and William H. Fox. Vol. XXIV, No. 3, 1948. 59 p. 50¢.

Some Variations Among the High Schools Represented at Indiana University. By Nicholas A. Fattu. Vol. XXIV, No. 4, 1948. 25 p. 50¢.

Indiana and Midwest School Building Planning Conference: Proceedings. Vol. XXIV, No. 5, 1948. 72 p. $1.

School Library Personnel and Standards in Indiana. By Margaret I. Rufsvold. Vol. XXIV, No. 6, 1948. 38 p. 50¢.

Suggestions With Regard to Some Persistent Elementary School Problems. Vol. XXV, No. 1, 1949. 35 p. 50¢.

Public School Kindergartens in Indiana. By Phyllis Plichta. Vol. XXV. No. 2, 1949. 38 p.

Scores on the Interpretation of Data Test: Their Relationship to Measures of Achievement, Personality, and Interest. By Nicholas A. Fattu and William H. Fox. Vol. XXV, No. 3, 1949. 55 p.

Music in the Elementary Schools in Indiana. By Thurber H. Madison, Dorothy G. Kelley, and William H. Fox. Vol. XXV, No. 4, 1949. 64 p.

Indiana and Midwest School Building Planning Conference: Proceedings. Vol. XXV, No. 5, 1949. 72 p. $1.

A Study of a Secondary School Program in Light of Characteristics and Needs of Youth. By Wilson H. Ivins, William H. Fox, and David Segel. Vol. XXV, No. 6, 1949. 69 p.

Problems in School Administration. By Raleigh W. Holmstedt. Vol. XXVI, No. 1, 1950. 65 p.

Art in the Elementary Schools of Indiana. By Martha R. Carter and William H. Fox. Vol. XXVI, No. 2, 1950. 83 p.

Visual Environment for Schoolrooms (by Paul W. Seagers) *with Proceedings of the Indiana Illumination Conference.* Vol. XXVI, No. 3, 1950. 64 p.

Studies in Education: Abstracts of Theses, 1945-1949. Vol. XXVI, No. 4, 1950. 108 p.

Indiana and Midwest School Building Planning Conference: Proceedings. Vol. XXVI, No. 5, 1950. 75 p.